

JUNE 1952

Route this to:

CHEMICAL PROCESSING

The News Magazine of Processing Developments and Control

Highlights

of This Issue

Heaviest fractions of crude oil must be piped at 400°F, often froze solid in line when steam tracer failed 8

Find very interesting utility in group of PVC resins 20

Pneumatic conveying proves economical for handling tons of molding compounds ... 46

Special techniques used in insulating spherical digesters that rotate 60

Ultrasonics: basic viscosity instrument uses no moving parts 80

Better paper pulp screening, sugar extraction by two developments 114

Three-point program helps establish world's safety record at soap plant 126

Cuts loose and picks up grime faster than 6 to 18-man crew 148

(Continued on page 6)

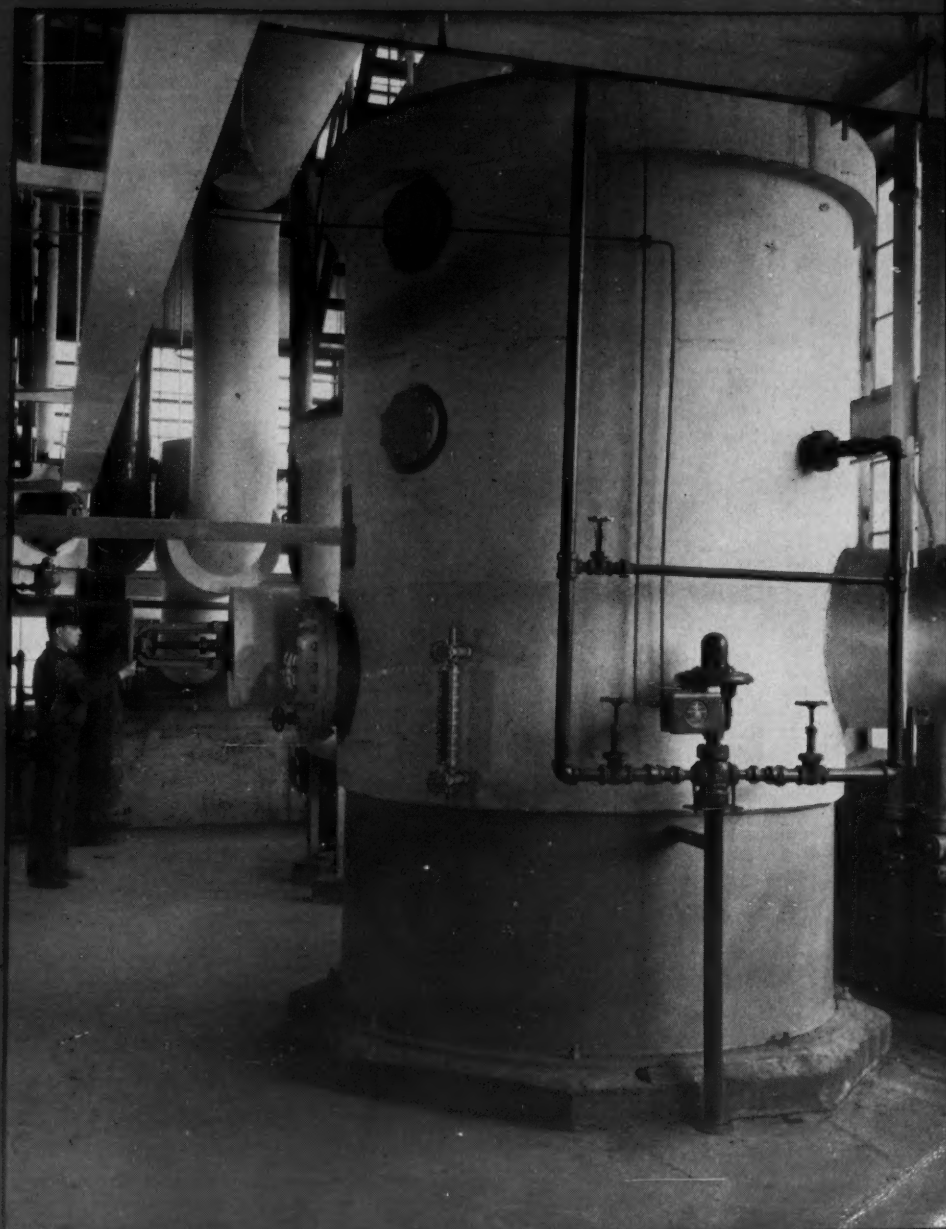
THE JOHN C. STARR LIBRARY
JUN 26 1952

The Cover Picture

Steam scrubber column is at Quaker Oats' Omaha furfural plant. Some techniques of applying insulation at the plant are given on page 60

PUTMAN PUBLISHING CO., CHICAGO

Creators of PUTMAN-STYLE Magazines
... terse, vital editorial; "hand-picked" circulation; square, high-visibility format; quality readership; hence more READER ACTION



For High Purity Process Use...

Specify BAKER & ADAMSON "C.P." Acids and Ammonia

always meet
or surpass A.C.S.
specifications!

FOR EXACTING PRODUCTION USE, when you need "C.P."

Acids or Ammonia—specify B&A. Year in, year out, Baker & Adamson "C.P." Acids always meet or surpass the "decimal point" purity standards set by the American Chemical Society for careful analytical work. Every ton—every pound—is "quality controlled" at each step on its way to you. That's why you can always depend on B&A "C.P." Reagent Acids for uniform performance in the most exacting processing operations.

YOU WILL FIND B&A's special 6½ gallon carboy offers many conveniences and economies for handling and storing "C.P." Acids in your plant. Note the many features listed here.

AND TO MEET your production schedules, B&A produces and stocks its Reagent Acids and Ammonia in industrial centers from coast to coast. Any one of the offices listed below will handle your order promptly and efficiently.

BAKER & ADAMSON *Fine Chemicals*

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR STREET, NEW YORK 6, N. Y.

Offices: Albany • Atlanta • Baltimore • Birmingham • Boston • Bridgeport • Buffalo • Charlotte • Chicago • Cleveland • Denver • Detroit • Houston • Jacksonville • Kalamazoo • Los Angeles • Minneapolis • New York • Philadelphia • Pittsburgh • Portland (Ore.) • Providence • St. Louis • San Francisco • Seattle • Yakima (Wash.)

In Wisconsin: General Chemical Company, Inc., Milwaukee, Wis.

In Canada: The Nichols Chemical Company, Limited • Montreal • Toronto • Vancouver •
SETTING THE PACE IN CHEMICAL PURITY SINCE 1882

*Complete stocks are carried here.

Features of B&A's 6½-gal. "C.P." Acid Carboy

1. "One-man" package—Compact...saves labor...lower gross weights make possible one-man handling and storage.
2. "Purity-sealed" cover—Completely encloses bottle; keeps out dirt; prevents sunlight damage to pure acids. Since the carboy neck is fully enclosed, breakage losses are virtually eliminated.
3. Pour-clean lip—Added security in sealing, yet simpler opening and closing. Keeps bottle neck clean, protects acid from contamination.
4. Saves storage space—Store more acid in less space... rectangular solid package with reinforcing corner posts adaptable to storage in solid tiers, or on pallets. Takes less room than commercial carboys with protruding neck.
5. "Full view"—Contents completely visible... acid level easily determined.
6. Extra strength bottle—Designed for superior strength and uniformity.
7. Resistant coating—Entire box weather-proofed for longer life and better appearance.



"That's Interesting"

U of Washington digs in against radiation

One of the primary safety measures taken at the University of Washington in Seattle was to bury their 200-ton Cyclotron or "atom smasher." The Cyclotron building and shop are huddled against the side of a hill and the "atom smasher" is located in a protected wing of that building, shielded by a minimum of ten feet of earth in all horizontal directions. The Cyclotron is operated from a console desk similar to that of a radio broadcasting station. About 1500 circuits connect the "atom smasher" with its control desk. (From Trane Weather Magic, The Trane Company, La Crosse, Wis.)

Test use of fluorides in table salt to prevent cavities in teeth

Tests at the University of California suggest the possibilities of using fluorides in table salt to afford protection against cavities developing in teeth. This would serve as an alternative to fluoridation of drinking water. It would extend protection to those in rural areas not served by water facilities that are fluorinated.

The tests, made on hamsters, have not been completed. It has not yet been determined whether salt containing fluorides can be effective in protecting the teeth of the test animals against decay.

Prod nature with steel strapping

Northwest foresters find they can force pine trees to bear seeds 12 to 16 years faster by tensioning steel strapping around them. Slowing down the flow of sap through the outer bark of a seedling tree, the strapping tricks the tree into "thinking" it is about to die. Immediately, the tree goes to work in a last-ditch effort to produce seeds to continue the species. After cones are fully matured, straps are removed and the tree returns to normal health. (From Confab — Vol 3 — No. 1 — Acme Steel Co., Chicago, Illinois.)

Rubber chemical developments

The use of organic chemicals to accelerate vulcanization originated with the discovery of the accelerating effect of aniline in 1906. The most commonly used accelerators are the diaryl guanidines (DPG and DOTG) and the thiazoles (MBT, MBTS, etc.) which came into large sale use since 1920.

The use of channel black for abrasion resistance was well established in the US by 1919. However, improvements in tread mileage are now being made through the use of the new reinforcing furnace blacks introduced since 1946. Use of catalytic plasticizers, which function by promoting a slight oxidation during hot mastication, began about 1936. The first non-toxic catalytic plasticizer (Pepton 22) free from objectionable odors was introduced in 1936. (Dyelines and Bylines — American Cyanamid Co., New York, N. Y.)

Cleans skin — without water

A recent US patent was granted to a Buenos Aires inventor for a gel-like detergent which is said to remove dirt, grease, oils, and the like from human skin without use of water. When rubbed upon human skin, the composition is reported to form a film which loosens and absorbs or dissolves any dirt or grease. Dirt may then be wiped off with cloth. Ingredients specified for formulating this detergent are: oleic acid, ammonium hydroxide, sodium hydroxide, mineral terebinth essence, and water.

Versatile soybean forms basis of glue for fiberboard

US patent has been granted to a process of formulating glue which is particularly suitable for manufacture of fiberboard. Glue is intended for manufacture of laminated paper containers, and it is said to contribute good water resistance and high strength. (Summary from Amnico Laboratory News, American Instrument Company, Inc., Silver Spring, Md.)

"That's Interesting"

Plastic that mothballed fleet has industrial applications

"Cocoon," the plastic protective coating that mothballed US naval vessels and air equipment has found wide civilian use. Easily applied by spray it is used as a roofing material, to form conduit on pipes carrying corrosive liquids and packaging machinery for shipment. As a wall coating it has been used with success in citrus concentration plants and permits the scrubbing required to maintain desired sanitary conditions. It also overcame problems peculiar to the refrigerated areas of the plants. (Protective Coatings, Inc., Tampa, Fla.)

25 octane numbers improvement

A revolutionary means of improving internal combustion engine performance has been tested successfully. The new method uses a synthetic ore, compounded from natural ores and minerals and cast into the cylinder chamber. The ore acts as a catalyst which alters the type of combustion without being changed itself. Up to 25 octane numbers improvement is claimed for gasoline performance and carbon formation is prevented. (Ohmite News — Ohmite Mfg. Co., Chicago 44, Ill.)

Prehistoric deep-freeze

A group of explorers meeting in New York were served drinks cooled by ice chipped from an Alaskan glacier. The ice was flown in especially for the occasion. At dinner the guests feasted on mastodon meat which had been deep-frozen in the glacial ice for approximately 50,000 years.

54 chemicals and how much of each is used as pesticide

The USDA recently completed a survey covering 54 chemicals to determine the quantity of each estimated to have been used as pesticides during the crop year 1950-51 and estimated to be required for 1951-52. Farmers total requirements for all pesticides for the 1951-52 crop year will be about 9% higher. Short supply of copper and sulfur is reflected in lower estimates for pesticides containing these materials. In this same connection it is expected that about 20,000,000 lb of dithiocarbamate will be required for the current year.

Artificial respiration used to mean — a bonfire on your stomach!

Pictorial spread in "The Arm-Co-Operator" shows past and present methods of applying artificial respiration. As one might guess, former generations were rather crude in administering first aid. The Normans had the custom of building a fire on the victim as the quickest way to regenerate life. Eleven methods are illustrated with photographs of wax models. This review includes the currently approved back pressure-arm lift method.

"Eyewash" that deserves approval

An emergency shower designed to wash all portions of body and clothing free of acids and other contaminants within 15 seconds includes specially placed sprays for eyes and face. (Oakite News Service — Oakite Products, Inc., New York, N. Y.)

Three pronged crusade to boost production

General Electric has announced a visual program to increase American productivity by means of industrial mechanization. The program consists of three parts: a 16-mm sound-color motion picture, a manual, and a survey form and check list. This triumvirate composes the "Progressive Mechanization" plan which ranges in breadth from the replacement of hand operations by simple machines up through the initiation of fully automatic continuous-process systems. (Information summarized from General Electric Company, Schenectady 5, N.Y.)

JUNE, 1952

Only PYREX® CASCADE COOLERS give you double protection against corrosion



- ① Stop chemical attack inside tubes
- ② Permit use of low cost water as coolant

You're doubly protected against corrosion—doubly assured of processing economies with PYREX brand Cascade Coolers. First, you can count on long service life with low replacement costs because of their exceptional resistance to practically all liquids. Second, you can use low cost sea or river water as a coolant. Then, too, PYREX Cascade Coolers offer you:

DURABILITY—They withstand rapid temperature changes and mechanical shock and the corrosive action of chemicals.

ASSURED PRODUCT PURITY—They provide positive protection for CP chemicals, drugs, foods and other products susceptible to contamination.

FURTHER ECONOMY—Low in first cost per

BTU transferred, PYREX brand Cascade Coolers have "glass-smooth" surfaces which resist scale formation—keep efficiency up . . . cleaning and maintenance costs down.

HIGH VERSATILITY—You can mount them on floor, wall or ceiling to conserve space—use them in series or parallel. Shipped complete, an eight-tube unit requires only a few hours for assembly by your own men.

Handy nomographs and tables to help you compute your heat transfer requirements, along with a complete description of PYREX Cascade Coolers are included in Corning's new Technical Bulletin PE-8. Send for your copy today. Mail the coupon below.



CORNING GLASS WORKS
CORNING, NEW YORK

Corning means research in Glass

Visit the new Corning Glass Center



CORNING GLASS WORKS, Dept. CP-6, Corning, N. Y.

Please send me a copy of Technical Bulletin PE-8, "PYREX Cascade Coolers" and name of nearest distributor.

NAME TITLE

FIRM

ADDRESS

CITY ZONE STATE

When inquiring check CP 2845 on handy form, pgs. 2-3

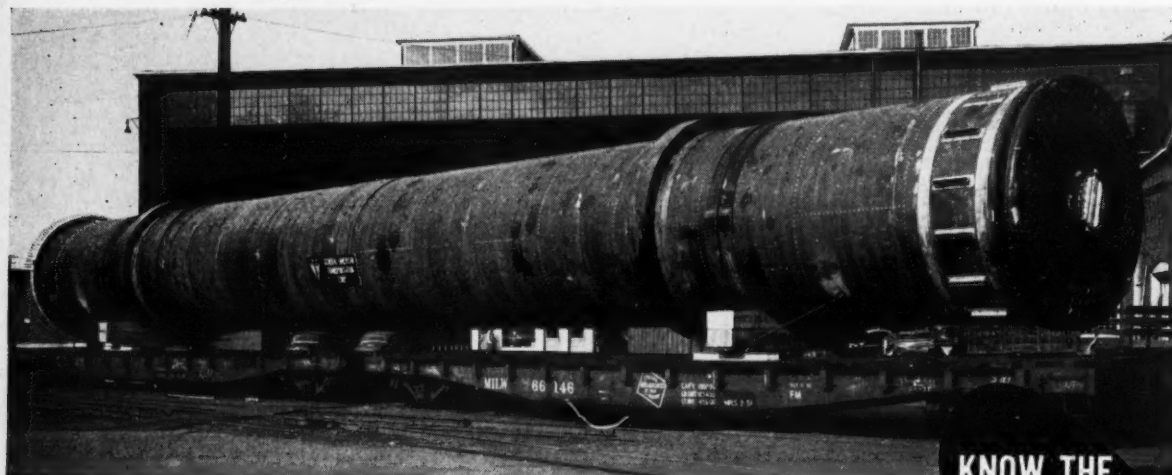
See Louisville for

**CREATIVE
DRYING
ENGINEERING**

Customer report on a Louisville Dryer . . .

"I would like to say that the Louisville Rotary Dryer which was recently manufactured by your plant at Sharon (Pa.) is in operation and that all reports from our engineers and operators indicate this to be the finest fabricating job in their memory.

"The outstanding quality on the fabricating jobs on these difficult pieces of equipment is certainly the finest type of advertising your company could have."



This is it . . . the largest steam tube dryer ever built!

Its cylinder alone is 10' in diameter by 100' in length. It is one of four ordered by this customer . . . proof he believes in Louisville Dryers! Proof furthermore of his satisfaction with the performance for more than 20 years of his present Louisville Dryers.

Write for new treatise on
Rotary Dryers

Other General American Equipment:
Turbo-Mixers, Evaporators, Dewaterers,
Towers, Tanks, Bins, Filters, Pressure Vessels



Louisville Drying Machinery Unit
Over 50 years of creative drying engineering
**GENERAL AMERICAN TRANSPORTATION
CORPORATION**

Dryer Sales Office: 139 So. Fourth St., Louisville 2, Ky.
General Offices: 135 So. La Salle St., Chicago 90, Ill.
Offices in all principal cities
In Canada: Canadian Locomotive Company, Ltd.
Kingston, Ontario

When inquiring check CP 2846 on handy form, pgs. 2-3

Here's Future of Synthetic Fibers

This editorial has been written at the request of the editors
of CHEMICAL PROCESSING . . . and is authored by

DR. FRANK J. SODAY
Director of Research and Development
The Chemstrand Corporation

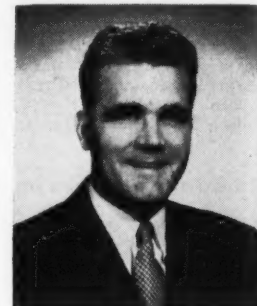
Was awarded Bachelor's degree in chemical engineering at Grove City College in 1929. Received Master's degree in 1931 and Ph.D. in 1932 from Ohio State University.

Prior to war, was research group leader in petrochemicals for Monsanto Chemical Co., and in solvent refining of lubricating oils for The Pennsylvania Grade Crude Oil Ass'n.

During World War II, was technical director for Copolymer Corp., and subsequently directed research and development for Devco and Reynolds Co., Inc., and for Lion Oil Company.

Currently heads all research and development activities in field of synthetic textile fibers for The Chemstrand Corporation.

Holds approximately 130 US patents which are principally in field of petrochemicals. Has published several articles in technical journals on subjects closely related to his work.



IN the brief span of years since the turn of the century the chemical industry has profoundly altered our basic economy and way of life. New products have been developed at an unprecedented rate. Some of the larger companies are placing 50 or more new chemicals on the market each year. Behind this emergence of the chemical industry lies the fact that chemicals are no longer regarded as mere processing aids, but have assumed the status of basic building blocks for industry. In the chemical process industries, 5.5 billion dollars were spent for new plants and equipment; and even larger amounts are to be spent in 1952.

A number of products made the headlines during 1951, and their influence will be felt during the current year. One of the most significant trends was the continuing expansion in the field of petrochemicals. Petroleum and natural gas are rapidly becoming the raw materials for much of our industry. Petrochemicals account for 25% of all chemicals being produced in this country today, and it is freely predicted that this will increase to 50% within ten years. Many chemical technologists are of the opinion that acetylene holds the key to future developments in the petrochemical field. Some feel that acetylene may be the starting point for an entirely new chemical industry.

Perhaps no single chemical has been in the news so constantly as that old mainstay—sulfur. The production of elementary sulfur has failed to keep step with increasing demand. Despite determined efforts to locate new deposits, only one sulfur dome of any consequence has been discovered in the past few years. From every indication, sulfur will be in short supply in 1952 and most of 1953. Benzene shortages also plagued the industry during last year, but the end is now in sight. The coking industry and newly developed processes in the petroleum industry are expected to balance the demand for benzene.

A continued deficiency of nitrogen emphasizes our growing dependence upon this vital element for food and fiber production. The per capita consumption of am-

(Continued on page 201)

CHEMICAL PROCESSING

CHEMICAL PROCESSING

(CHEMICAL PROCESSING PREVIEW)
The News Magazine of Processing
Developments and Control

Vol. 15 JUNE, 1952 No. 6

Editorial

John C. Vaaler	Editor
Harry McCormack	Technical Editor
Joseph L. White	Associate Editor
Dana B. Berg	Associate Editor
M. Bruce Smith	Associate Editor
Bruce Fader	Assistant Editor
Walter J. Banke	Assistant Editor
Edward H. Styles	Assistant Editor
Karl Beliakoff	Assistant Editor
H. W. Lichtenberger	Art Editor

Administrative

Russell L. Putman	President and Publisher
Ewing W. Graham	Vice President and General Manager
Nathaniel Beck	Vice President and Sales Manager
Kenneth S. Kaull	Vice President
Harris N. Pickett	Vice President
Carroll H. Thomas	Vice President
George W. N. Riddle	Director of Development
Daniel J. Hansen	Business Manager
Raymond C. Clifford	Production Manager

Advertising representatives are listed on page 214

Over 33,000 Circulation in Chemical Process plants

Chemical & Allied Products	Paper and Pulp
Coke Oven Products	Petroleum Refining and Products
Composition Materials, Fiber, etc.	Plastic, Cellulose, Rayon, etc.
Distilleries and Breweries	Public Utilities, Consultants, Govt.
Drugs, Cosmetics & Pharmaceuticals	Rubber Products
Fertilizers	Soap and Cleaning Compounds
Food Products	Stone, Clay & Glass Products
Leather Tanning	... and allied Lines (Carbon Glue, Oils, Tobacco, etc.)
Lime & Cement	
Metallurgical, etc.	
Paint & Varnish	

Published Monthly By
**PUTMAN PUBLISHING
COMPANY**

111 East Delaware Place, Chicago 11, Illinois
WHitehall 4-5977

Copyright 1952 by Putman Publishing Company

Member

NBP National Business Publications, Inc. CCA
Controlled Circulation Audit, Inc.

For more information on product at right, specify CP 2847
... see information request blank between pages 2-3.



SAFETY

BS&B

HEADS

It Can Only Fail **SAFE**

...from overpressure
within pressure systems



The heart of a BS&B Safety Head is the rupture disc...and it provides the only kind of "heart-failure" that means life and continued healthy operation. The safety disc's "heart-failure" is the controlled weak-

ness BS&B built into it for your protection—for the safety of your personnel, your property, and your valuable equipment.

You give us the necessary operating information. BS&B will give you a safety head—with a heart—that will always fail safe—within plus or minus 5% of the pre-determined pressure specifications for safety. This we can guarantee; for discs are rated and checked by actual rupture tests. First, the metal is selected for fabrication to specifications of any given lot of discs. Then discs are selected at random, and tested to destruction after the lot is completed. If each one tested does not break within 5% of the rated pressure the entire lot is discarded.

To the many industries requiring pressure vessels and accessories, BS&B is well known for its research and fabrication in this field. For example, we have solved the behavior problems of metals where safety head discs are concerned. In the BS&B plant you'll find the largest selection of thin ductile metals in the world ever assembled in one place. This enables us to fabricate over 95% of all rupture disc orders from materials on hand.

BS&B Safety Heads can be used for primary relief wherever maximum protection is required...or for secondary relief to back up a relief valve whenever the contents of a vessel or system may prevent the valve from functioning properly. It provides full pipe-sized unrestricted opening. Rupture discs are available within a range of 5 lbs. to 40,000 lbs. The fail-safe action of BS&B Safety Heads is fast, positive, accurate...whether your pressure applications are for air, gas or liquids—bland or corrosive. They're code-accepted.

Never be too sure about safety. WRITE TODAY for complete BS&B Safety Head Catalog and complete details. There is no charge or obligation for a complete analysis of your pressure safety requirements.

SAFETY

BS&B

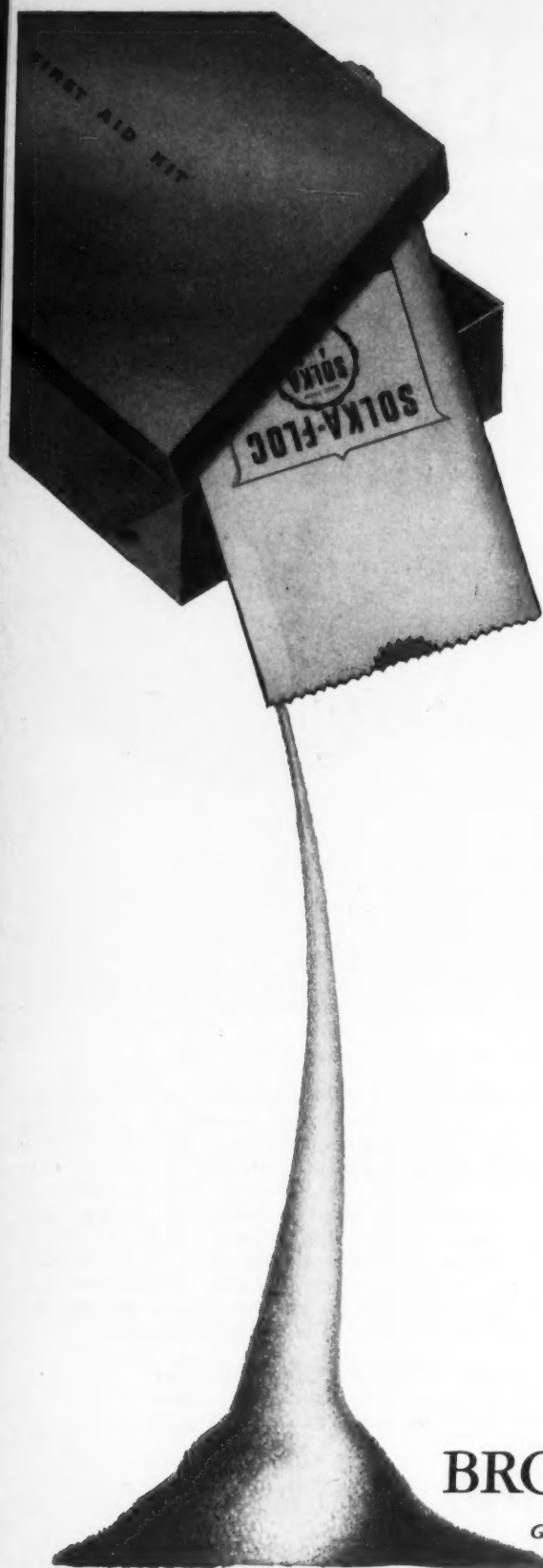
HEADS

BLACK, SIVALLS & BRYSON, INC.

DEPT 2-M3

7500 EAST 12TH STREET

KANSAS CITY 3, MISSOURI



SOLKA-FLOC[®]

"First Aid" for Filters

In any filtration emergency, SOLKA-FLOC may be just the filter aid you need.

Here's why:

- **SOLKA-FLOC** can prevent abrasion damage in your filtration processes
- **SOLKA-FLOC** can eliminate costly "leak-through"—quickly and safely
- **SOLKA-FLOC** often enables unusually high flow rates
- **SOLKA-FLOC** permits controlled porosity in the filter cake
- **SOLKA-FLOC** saves labor since filters do not have to be cleaned so often

These are only a few of the reasons why SOLKA-FLOC may reduce your filtration problems. Why not find out more about its use as a filter aid? Write our Technical Service, Department BF-6, at Boston, describing your filtration system.

BROWN  **COMPANY, Berlin, New Hampshire**
CORPORATION, La Tuque, Quebec

General Sales Offices: 150 Causeway Street, Boston 14, Mass.
Dominion Square Building, Montreal, Quebec

SOLKA & CELLATE PULPS • SOLKA-FLOC • NIBROC PAPERS • NIBROC TOWELS • NIBROC KOWTOWLS • BERMICO SEWER PIPE, CONDUIT & CORES • ONCO INSOLES • CHEMICALS

When inquiring check CP 2848 on handy form, pgs. 2-3

HIGHLIGHTS

(Continued from front cover)

- Production keeps going because of non-clogging pipeline strainer 12
- Ion exchange techniques save 100 lb of CrO₃ daily from plating wastes 18
- No engine needed overhauling in 2½ yrs when using synthetic lubricant 19
- Lead cyanamide: an active anti-rust pigment 24
- Resists vegetable oils better than previous synthetic rubbers 35
- Producing quantities of soil conditioner 39
- Less brawn and more brew results with fleet of lift trucks 52
- Sliding gates divide box cars into compartments, prevent shifting of LCL shipments 53
- Here's that "rubber ruler" for plotting, figuring with odd scales 62
- Find efficient way to electroplate aluminum .. 78
- Senses and transmits pressure or force digitally 84
- Changes of downstream pressures do not affect purge rate of relay device 91
- Superior image quality stressed in electrostatically focused electron microscope 96
- Measures transmission, reflection as well as various functions of color 99
- Extend viscosity range — single instrument checks 0.5 to 2,000,000 cp 104
- Even the regeneration is automatic with improved monobed demineralizer 117
- High shearing action assures quick liquid mixing 122
- Fingers are safe around air-controlled press .. 124
- Measures industrial noises on the spot 131
- No make-ready required in printing knocked-down cartons at 1500 per hr 141
- Bags are sealed automatically without being folded by operator 145
- Acrylic plastics become static-free when non-flammable agent is applied 157
- 800-cycle oscillator provides high sensitivity for motor testing 161
- Able to handle liquids where a constant capacity is required but head varies 179

CHEMICAL PROCESSING

EDITORIAL CONTENTS

That's Interesting	2
Guest Editorial	4
New Solutions of Processing Problems — 11 actual "installation type" articles on "how it was done better"	8
Materials — 35 reports on development in materials that make for better processing	20
Material Handling — 18 articles describing developments in handling	46
Ideas — 23 ideas gleaned from this or other industries that offer possibilities in chemical processing	60
Process Instrumentation — 22 reports on better process control through instruments	80
For the Laboratory — "What's new in the laboratory?" is the question answered in 21 different ways here	96
Processing Equipment — 12 articles on developments in equipment to aid processing operations	114
Safety — 15 editorials on developments that should be an aid to those responsible for safety in chemical processing operations	126
Briefs — 11 "quick looks" at interesting articles in contemporary publications	138
Packaging — after making the product, here are 10 ways, schemes, ideas for getting it to user	140
Construction and Maintenance — 48 helpful ideas pointing-up latest trends in constructing chemical systems, and how to maintain them	148
Expanding Chemical Production — who's initiating production, who's expanding facilities for chemicals	180
New Literature — 108 reviews of current literature describing process equipment and materials	182
Processing and Engineering Data — 4 nomographs, tables, and charts providing the chemical processor with quick sources of important information	184
Convention & Exhibit Schedule	205
Special Readers Service	
1. Product Directory — "Quick-locator" of all types of materials, instruments, processing equipment . . . lists everything discussed in this issue, with page references	206
2. To Get More Information on Products . . . see Readers Service Department slip opposite page	2
3. To Subscribe to This Magazine . . . see Readers Service Department slip opposite page	214
Advertisers In This Issue	210



**need faster dispersion
to improve your process?**

When processing time counts, try speeding up your rate of dispersion with Cyanamid's

AEROSOL® WETTING AGENTS

The most powerful wetting agents known, these compounds are in daily use wherever speedy rinsing, wetting and penetration are desired. AEROSOL Wetting Agents are fast-acting because they quickly increase fluidity . . . contain no electrolyte to hinder their action

Write today for our free booklet giving complete information on the many ways AEROSOL Wetting Agents can help you.

Now available—AEROSOL OT-B, a rapidly dispersible powder. Special Technical Bulletin available upon request.



AMERICAN Cyanamid COMPANY

INDUSTRIAL CHEMICALS DIVISION, DEPT. CP-6
30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

In Canada: North American Cyanamid Limited, Toronto and Montreal

When inquiring check CP 2849 on handy form, pgs. 2-3

Heaviest Fractions of Crude Oil Must Be Piped at 400°F, Often Froze Solid in Line When Steam Tracer Failed

PROBLEM: Flux and pitch are just as important products to Globe Oil & Refining Company at Lemont, Ill., as fuel and lighter oil products. Means for transporting them from where they are produced to where they are needed must take into account the temperatures at which they are fluid enough to be pumped — 250°F for flux and 400°F for pitch.

Flux is a straight-run residue that is completely fluid as withdrawn from topping units; pitch is cracked residue also completely fluid as it issues from thermal cracking units. Both products go to their own run-down tanks, thermally insulated and steam heated to maintain fluidity. Constant circulation in the interconnecting lines, here, keeps them open.

Run-down tanks are located in the immediate vicinity of the processing area, whereas the bulk loading station is at a remote site. Before products can be loaded into tank trucks, they must be pumped a considerable distance through outdoor lines.

Originally, these transport lines had internal steam tracers for maintaining fluidity. There was constant trouble with steam lines freezing and bursting during cold winter weather. Without heat, transport lines froze solid. Even in summer, any failure in the steam heating system resulted in complete shut-down. It was necessary to take the lines from their hangers, remove insulation, disjoint them, melt them down with steam or torches, blow them out, repair the tracer, and finally back-track through these steps to restore the line to service.

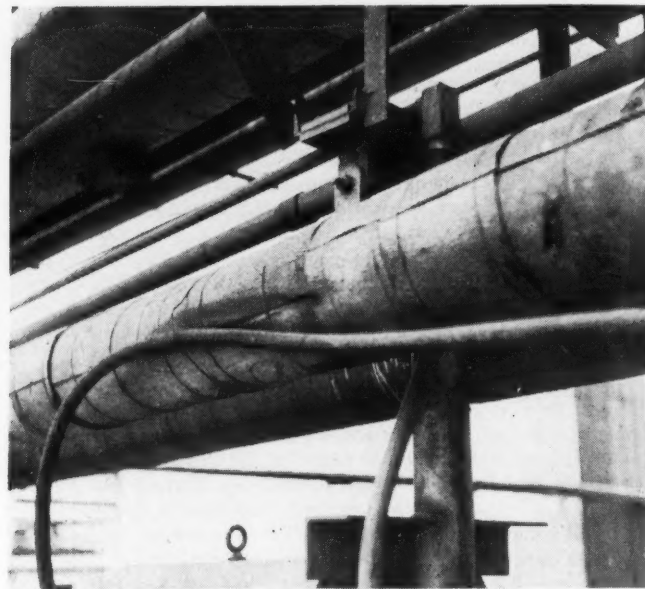
Disruption in transporting these products where and when they were needed, plus maintenance on the line, was a costly expenditure.

Solution: Hearing about electric heating of lines, the Globe Oil & Refining Company studied the applicability of various types of these systems for their use and finally determined that The Thermal Electric System of heating would meet their needs. Thermal Electric is the process developed by Fluid Systems, Inc., of passing low-voltage current through the walls of fluid-conveying pipe. The pipe itself becomes an electrical conductor, or more accurately, a resistance heating element. The system is

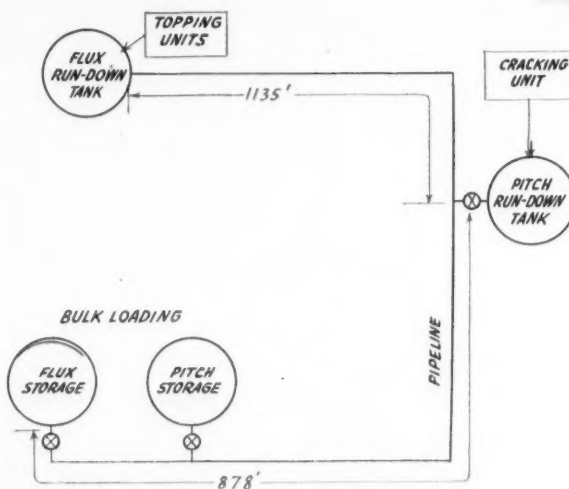


Engineer pointing to flange that electrically insulates Thermal Electric pipeline at point of its entry to storage tank. Note frozen pitch on ground — material that flows within pipe

Electric heating of lines found solution to numerous interruptions and costly maintenance of steam tracing. More efficient heat transfer and better temperature control attained



Four-inch pipeline heated by passing low-voltage current through it. Note heavy thermal insulation, paralleling conductor cable, and electrically insulated swivel hanger bracket. Transforming Energizer, just visible, is immediately below pipe



Schematic representation of the distances involved in transporting viscous flux and pitch at the Globe Oil & Refining Company

not intended to raise fluid temperature in a pipe; rather, it is designed to maintain a given temperature throughout the length of pipe.

Details of the flux and pitch transport lines at the Globe Oil & Refining Company are indicated in the accompanying diagram. When flux is being transported, it flows from the flux run-down tank, by-passes the pitch run-down tank, and enters the flux storage tank at the bulk loading station by by-passing the pitch storage tank. Pitch is routed to storage at the bulk loading station over a portion of the same line by suitable adjustment of flux valves. Flow of both products is intermittent. This arrangement has the advantage of one line for two products, and in addition, routes the higher viscosity pitch over the shortest path. It is hardly necessary to say that storage tanks at the bulk loading station are thermally insulated and steam heated.

The transport line is standard 4-inch (Schedule 40 steel). Electrical Insulated Pipe Joints separate the line from tanks at the point of entry. Hangers that support the line on an overhead structure are swivel type to allow for expansion and contraction, and are electrically insulated from supporting structure. Heavy magnesia thermal insulation with non-conductive weather-proof shielding covers the entire line.

Length of each electrically insulated section of the line has been determined by exacting tests of the electrical characteristics of pipe as a current conductor, utilizing resistance, hysteresis, and eddy current losses so that the desired maintenance temperature of flux or pitch will be attained when a specific current is carried. Thermal Electric Transforming Energizers are located along the line, and step down 440-volt supply to non-shock current. Heavy conductor cables (500,000 circular mils) from these Energizers parallel and are tapped to the extremities of the section ahead and behind each Insulated Pipe Joint by means of pipe terminals. The pipe itself completes the electrical circuit.

In the case of the portion of the line that handles merely flux, there are four 20 kva and one 6 kva Transforming Energizers. Portion of the line handling both flux and pitch is fitted with five 20 kva Energizers. Thermostats in each section control the flow of current in respective sections to maintain desired temperature. Thermal Electric Control Panels are located in a convenient place near transformers for making adjustments as necessary.

Results: Thermal Electric installation was completed in 1947, and since that time no difficulty or interruption due to freeze-up has occurred in the transport of these products. According to Mr. R. B. Pierce, Plant Superintendent, the Globe Oil & Refining Company is very satisfied.

Electric heating has been found to offer more efficient heat transfer and better temperature control than steam. Steam heating with its attendant maintenance is no longer a governing factor in transporting these heavy products. An interesting feature of this installation is that the taps on the Energizers and the positioning of the cables on the pipe sections have been chosen so carefully that thermostatic control is not actually needed. The system functions as required when current flows continuously year around. Engineers at the Globe Oil & Refining Company have found that by shifting the tapping terminal on the line as little as 2' they can change the temperature considerably.

(Thermal Electric and Fluid Systems, Inc., are Registered Trade Marks of Fluid Systems, Inc., Dept. CP, 1881 Dixwell Avenue, New Haven 14, Conn. . . . or for more information check CP 2850 on handy form, pages 2 and 3.)

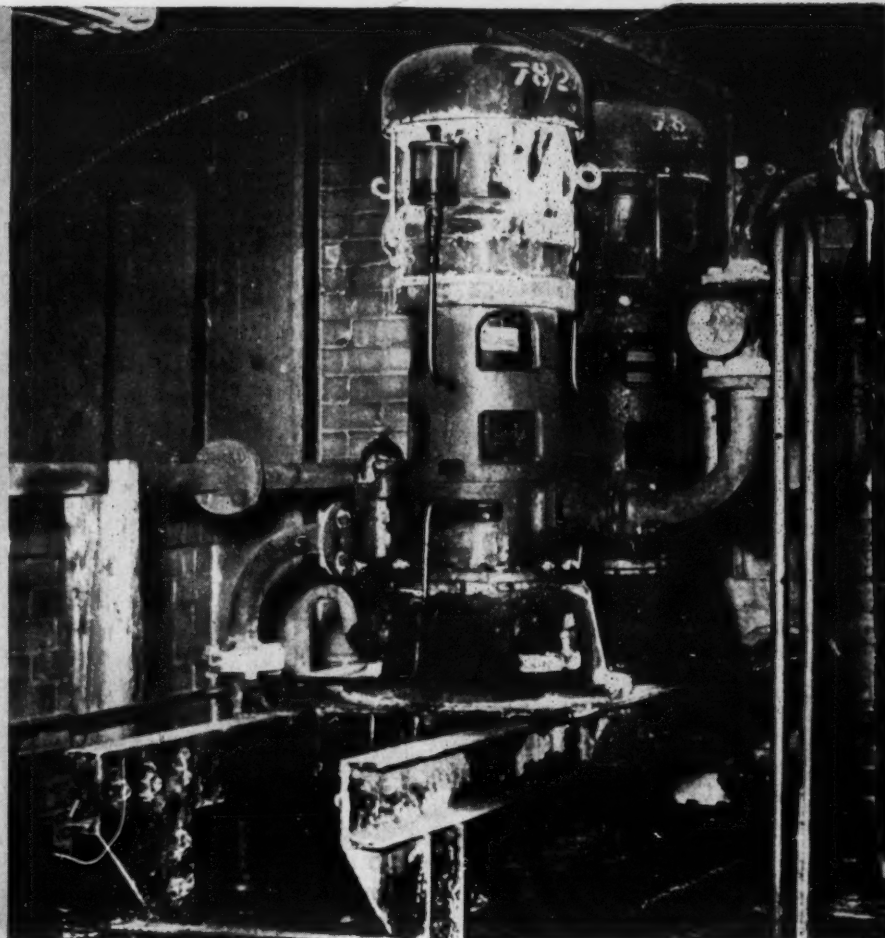
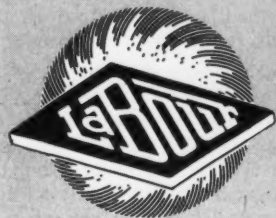
Tells how to overcome problem of welding zinc castings

How Kirksite dies and other zinc die castings can be welded without melting the parent metal is told in leaflet featuring an article titled "Zinc Die Cast Can Be Welded." Case histories, photographs, data, and technical information are included on the reclamation and repair of a large Kirksite die as well as a delicate white-metal scale balance arm.

Applications, characteristics, and physical properties of low temperature welding alloy, EutecRod 196, are described.

Leaflet TIS 969 is issued by Dept. P, Eutectic Welding Alloys Corp., Dept. CP, 172nd St. and Northern Blvd., Flushing 58, N. Y. When inquiring specify CP 2851 on handy form, pages 2 and 3.

JUNE, 1952



Universal Answer to Tough Jobs

For more than two years now, the LaBour Type G pumps pictured here have been on continuous 24 hour service handling 96% sulphuric acid at 65° C. They are operated in London, England, by that city's largest maker of sulphuric acid. These particular pumps were built in the British LaBour plant, under the same strict supervision and test policy followed in the U. S. LaBour operations.

All over the world, wherever chemical proc-

esses place severe service demands on pump equipment, experienced engineers prefer LaBour. With well over a quarter century of history now on record, LaBour pumps have universally demonstrated themselves as the best possible insurance against costly interruptions due to pump failure. If you are interested in true operating economy based on twenty-eight years of proof, ask us about LaBour pumps for your next job.

ORIGINAL MANUFACTURERS OF THE SELF-PRIMING CENTRIFUGAL PUMP

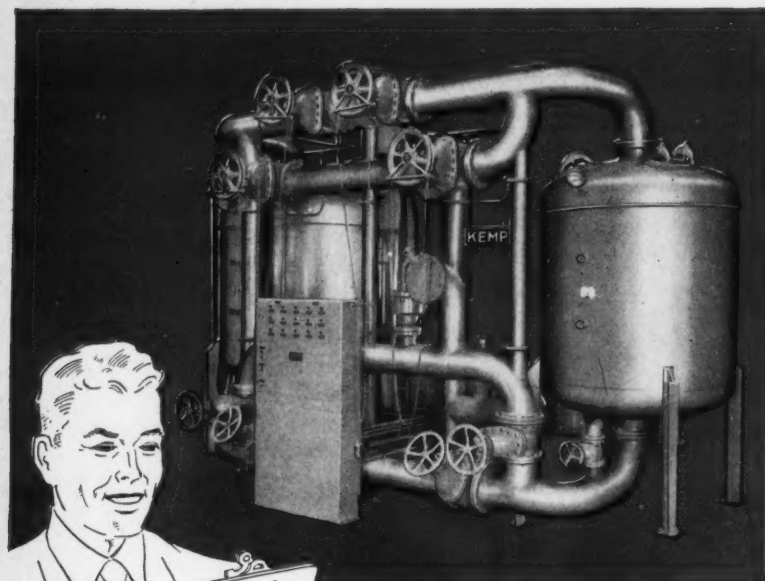
LABOUR

THE LABOUR COMPANY, INC. ★ Elkhart, Indiana, U. S. A.



When inquiring check CP 2852 on handy form, pgs. 2-3

There's a **KEMP DRYER** for every Moisture Problem



Dry air, gases, liquids to sub-zero dew points . . . at minimum cost

Quality, diversity, flexibility, economy . . . four good reasons why Kemp Dynamic Dryers offer you the best solution for any moisture problem. Kemp superiority of design and engineering know-how is your assurance of dependable, low-cost performance whether you dry air, gases or liquids. Many Kemp users report drying to sub-zero dew points for as little as $\frac{1}{4}$ ¢ per mcf—including all charges for labor, capital investment and materials. In addition, Kemp guarantees operation of every unit to meet your specifications.

Kemp Engineering Versatile

Gas, electric or steam regeneration is standard equipment with every Kemp Dynamic Dryer . . . with or without cooling units. Also, depending on your needs, you have a choice of manual, semi-automatic or fully automatic operation. In every instance, Kemp will specify the proper desiccant suitable for your operation. Chances are there is a standard Kemp design that is ideal for your plant and saves you money too. It costs you nothing to investigate.

3 BASIC DESIGNS AVAILABLE*

ORIAD—Dries air used to actuate tools, valves, instruments, etc., where drying requirements are moderate.

RADIATION COOLED—For small or medium flow rates. Offer low operating cost with maximum efficiency.

CONVECTION COOLED—Provide continuous drying capacity of air and gases at minimum cost.

*All of above in complete range of sizes with manual, semi-automatic or fully automatic operation.

KEMP

OF BALTIMORE

DYNAMIC DRYERS

For technical information and facts on how Kemp Dryers can solve your moisture problems, write for Bulletin D-27 to:

THE C. M. KEMP MFG. CO.
405 E. Oliver St., Baltimore 2, Md.



NEW SOLUTIONS of processing problems

Membrane is heart of continuous ion exchange method with wide-spread implications . . .

low cost is feature, too, as there is no need to buy chemicals, and equipment is small and simple

A recently announced method for the demineralization of sea water, based on the use of electrical energy in conjunction with synthetic membranes marketed under trademark Permionic, has two features of note: continuous operation and potential low-cost use. In addition to use in the purification of natural waters, the method is attractive for the deionization of raw sugar, glycerine, milk, and organic products, and the recovery of valuable chemicals and metals from waste streams.

Focal point of the process is the Permionic membrane whose basic structure is a cross-linked matrix of polymeric material — ranging from 0.01 to 0.04 inch thick. In the interstices of this network is water and at various places there are active charged spots bound into the structure. Countering each active spot is an oppositely charged ion which is more or less mobile and dissolved in the water.

If a cation membrane — one showing high ion-selectivity for positive ions — is placed in a salt solution, an interchange of positive ions occurs between the solution and the membrane. However, the negative charges in the membrane are immobile, and at all times there will be a number of positive ions held in the structure equal to the number of bound negative charges. The ion-selectivity of a membrane for cations is due to the fact that the number of positive ions inside the membrane is always greater than the number of mobile negative ions.

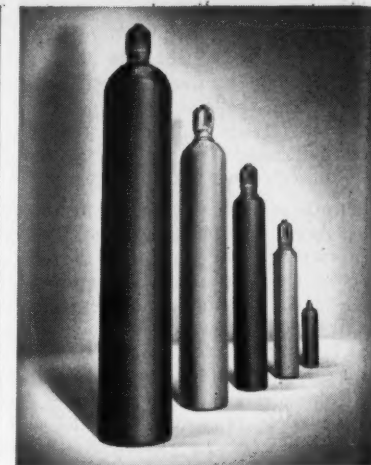
Contrasting with those ion exchange processes based on intermittent batch operation, deionization as performed by the Permionic membrane becomes a continuous performance. In addition, there is no need for buying or handling chemicals, the equipment is much smaller and simpler, and the cost is estimated to be $\frac{1}{2}$ to $\frac{1}{10}$ of that for batch ion exchange methods.

In sea water demineralization, water emerges after treatment, split into two streams — one a fresh water stream, $\frac{2}{3}$ of the volume of feed; the other a brine stream, $\frac{1}{3}$ the volume of feed and containing all the salt. The fresh water produced can be used for drinking, industrial or agricultural purposes. The brine solution may be treated before disposal to produce salt, magnesium or other chemicals derived from sea water.

Flow of water is continuous, and other than the water stream, the apparatus has no moving parts. Since water pumping costs are reported negligible and neither heat nor chemicals are used, electrical energy, which powers the process, becomes the determining cost factor.

A membrane unit of a given size will purify sea water over a wide range of flow rates if the amount of electrical power is increased as the sea-water flow is increased. Thus, the faster the flow the more expensive fresh-water production becomes in terms of electrical energy used per gallon. At relatively low flow rates, energy consumption can be as low as 20 kw-hr.

In many areas of the West where the water problem is acute, electrical energy is available for as little as 3 mills per kw-hr. Therefore, the process makes possible production of fresh water from the sea in such areas for a power cost of only 6 cents per thousand gallons. Even more attractive from the cost standpoint is the purification of brackish water. Water is brackish when it has been contaminated with moderate salt concentrations ($\frac{1}{10}$ to $\frac{1}{5}$



Wise buyers are buying HARRISBURG SEAMLESS STEEL CYLINDERS FOR HIGH-PRESSURE GASES

Right Now!

for
FIXED
GASES

for LIQUID
GASES

carbon dioxide, chlorine

helium, hydro-
gen, nitrogen,
oxygen.

for MEDICAL GASES

carbon dioxide, cyclopropane,
ethylene, helium, nitrous oxide,
oxygen.

HARRISBURG STEEL . . .
pioneer and world's largest
producer of seamless
steel high-pressure gas cyl-
inders made to I.C.C. Spec-
ifications . . . offers you a
complete range of sizes,
capacities, and types . . .
for domestic and export
use.

We shall be glad to
mail you this Cata-
log of Harrisburg
Cylinders . . . and
quote prices . . .
upon request.



Harrisburg Steel
CORPORATION
HARRISBURG 26,
PENNSYLVANIA

When inquiring check CP 2854
on handy form, pgs. 2-3

CHEMICAL PROCESSING

When inquiring check CP 2853 on handy form, pgs. 2-3

NEW SOLUTIONS of processing problems

that of sea water.) By use of the membrane, the electrical energy consumed in the purification of such waters may cost as little as one cent per thousand gallons.

In contrast with conventional purification by evaporation, membrane demineralization becomes cheaper as the salinity of the raw water is reduced. The cost advantage of the membrane process over evaporation of brackish waters can be as great as 100-fold.

Developing firm reports that it will probably not have units available for general sale for perhaps over one year. In the meantime, efforts are being devoted to field testing of medium-sized units of various types.

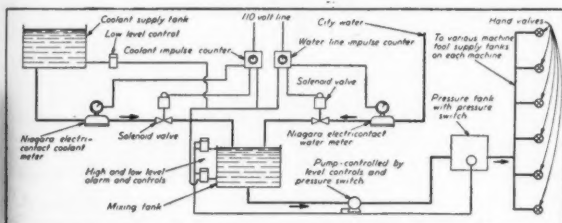
(Communications relating to process should be addressed to Ionics, Inc., Dept. CP, 152 Sixth St., Cambridge 42, Massachusetts.)

Delivers proportioned liquid automatically to replace blending 5-gal lots...

blend is more consistent while spillage and loss have been eliminated at the same time

Problem: A large Cleveland plant used small batches of coolant solution made by blending one part coolant liquid with forty parts water. This was done by hand, the small batches being carried to the work site in five-gallon cans. Aside from the excessive labor requirements of this scheme, it was found that blends were not consistent and much liquid was lost through spillage.

Solution: Diagram shows the solution they arrived at. Key components are Niagara Electri-contact Meters, impulse counter, high and low level controls, and sole-



Heavy lines show flow; light lines, electrical circuit

noid valves. When coolant solution is needed, a valve at the site delivers it by reducing pressure on the tank. Pressure tank is refilled also unless level in the mixing tank is too low. In case it is, control signal is passed one step further to the impulse counter. Counter is preset and allows the predetermined amounts of water and coolant to be run into mixing tank and blended.

A further safeguard is the level control of the coolant tank. It does not permit operations to start unless there is sufficient coolant on hand to make the batch.

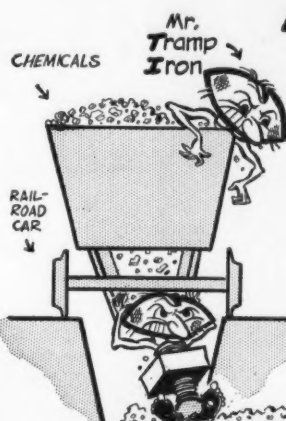
Electri-contact meters are designed to shut off electrically when proper batch size has been reached. They are available in several models including some in stainless for corrosive materials. These meters can attain practically any ratio of components desired.

Results: There is always a properly proportioned blend on hand now and no time is wasted in mixing and carrying coolant. Automatic delivery has solved the spillage problem, too.

(Electric-contact Meters are manufactured by Buffalo Meter Co., Dept. CP, 2898 Main St., Buffalo, N. Y. ... or for more information check CP 2855 on handy form, pages 2 and 3.)



ERIEZ MANUFACTURING CO., ERIE, PA., U.S.A. • PRODUCERS OF MAGNETIC SEPARATORS



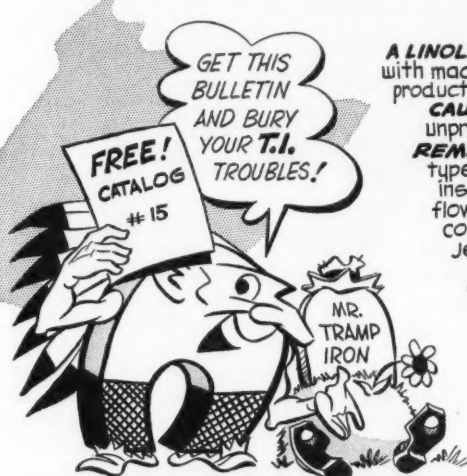
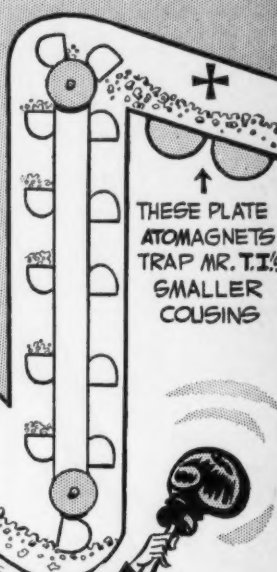
ERIEZ PLATE-TYPE ATOMAGNETS AND ATOMAGNET PULLEYS

automatically purge wire, railroad spikes, bolts, nuts, and other tramp iron from chemicals at unloading and processing points.

The non-electric magnetic separators prevent fires and explosions, machinery breakdown, and product contamination... are not dependent on any outside source for magnetic power.



ERIEZ MAGNETIC PULLEY →



HOW TO PROTECT CHEMICALS WITH MAGNETS.

This is one of the subjects treated in a new bulletin offered by ERIEZ Manufacturing Company. It is complete with descriptions and installation drawings of all ERIEZ magnetic equipment for the chemical industry.

If you are troubled with tramp iron, this brochure will tell you how to catch it and save money.

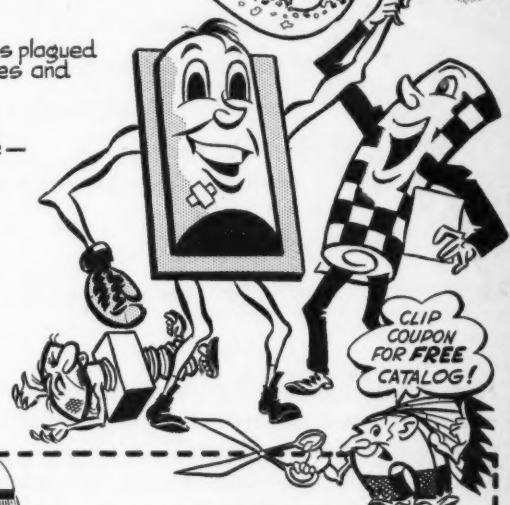
Use coupon at right

A LINOLEUM MAKER... was plagued with machinery damage, fires and product contamination.

CAUSE: Tramp Iron in unprocessed cork...

REMEDY: ERIEZ plate-type ATOMagnets installed in gravity flow chutes before cork enters Ball & Jewell grinders...

RESULTS: No machinery down-time...no fires...no product contamination!



Manufacturing Company, 201 State Street, Erie, Pa.

My Contamination or Separation Problem is: _____

Please Send Me the FREE CATALOG # 15

Name _____ Title _____

Company Name _____

Street _____

City _____ Zone _____ State _____ 52-F

When inquiring check CP 2856 on handy form, pgs. 2-3

PIE-FLEX

the **REALLY PORTABLE**

PORTABLE MIXER

Patent applied for



**Streamlined
Perfectly Balanced
Flexible—Adaptable
Perfect for
Hazardous Locations**

*The Mixer Designed
with the Shopman in Mind*

Here is extraordinary lightness and *real* portability in a portable mixer! Motor is coupled to propeller shaft by a flexible drive shaft. Motor can be mounted in any convenient location, in the adjoining room, if necessary in case of inflammable or explosive materials. Write today for full details.

PROCESS INDUSTRIES ENGINEERS, Inc.

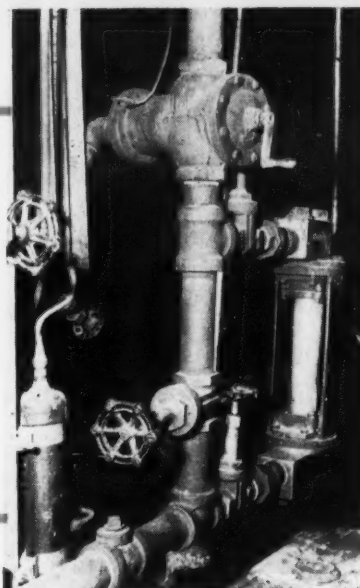
MANUFACTURING AND CONSTRUCTION DIV.,

5640 Friendship Ave., Pittsburgh 6, Pa.

Branch Office: 703 Temple Bldg., Rochester 4, N.Y.

When inquiring check CP 2857 on handy form, pgs. 2-3

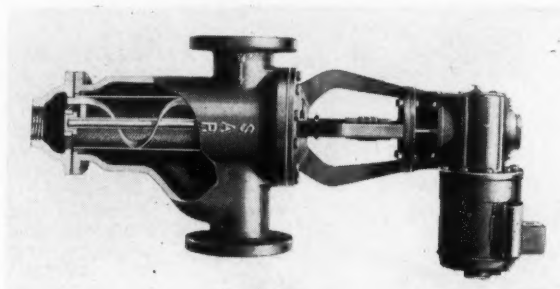
Page 12



Scraper strainer installed in line ahead of rotameter taps in plant of Drackett Company. This is hand-operated model, cleaning being accomplished by turning of crank

Cutaway view of hand-operated scraper strainer reveals how spiral blade removes particles from screen, carries them out to sump

Unit is also made with motor and gear reduction drive



PROBLEM: Alkaline protein liquor used in soybean processing at the Drackett Company in Cincinnati deposits a coating inside pipelines. As this coating broke loose — in the form of solid particles — it quickly plugged ordinary pipeline strainers, causing a back pressure that forced some of the particles through the screens.

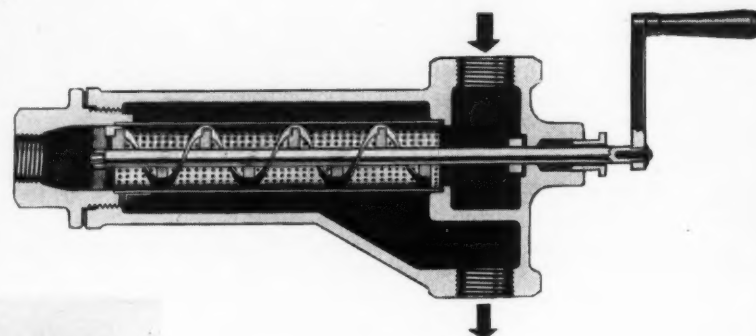
As these particles passed the strainer, they eventually plugged centrifuges and other process equipment, necessitating frequent and costly shutdowns to clean that equipment. To avoid this expense, it was necessary to take out the strainer often and clean it. This practice, however, meant loss of production time and wasted manhours in maintenance work.

Solution: Scraper strainers were installed in the pipelines ahead of process equipment. Inside this unit is a spiral scraper blade that hugs the cylindrical screen of the strainer. This curved blade, rotating like a worm gear, scrapes foreign particles off the screen into a sump. Without interrupting the flow, the screen is cleaned

New Solutions
OF PROCESSING PROBLEMS

Production Keeps Going Because of Non-clogging Pipeline Strainer

Scraper removes particles from screen, eliminates shutdowns for cleaning strainer and other clogged equipment



daily by turning the rotor blade with a hand crank (motor-driven types are also available).

Results: Production shut-downs to clean strainer screens and jammed centrifuges have been eliminated. Savings in labor are reported.

(Type VRS scraper strainer used here is made by Sarco Company, Inc., Dept. CP, Empire State Bldg., New York 1, N. Y. . . . or for more information check CP 2858 on handy form, pages 2 and 3.)

Impossible to make bubble-free wax until a closed blending system was installed . . .

now product is not clouded with air bubbles and it does not discolor due to oxidation

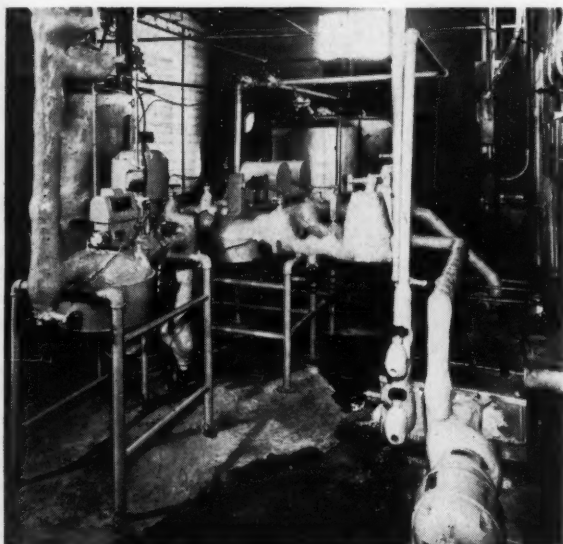
Problem: When paraffin, microcrystalline wax, and a small amount of polyethylene were blended into the unique low-temperature thermo-plastic sealing material made by Sure-Seal Corporation of Salt Lake City, air bubbles and off-color too often downgraded the finished product. Process called for weighing out material for each batch, melting it in a tank and agitating it with a mixer. Cloudiness was due to air bubbles entrained during mixing and the off-color resulted from subsequent oxidation of the wax by this air.

CHEMICAL PROCESSING

Solution: Sure-Seal engineers worked out a design using closed blending equipment. Three flowmeters in the system are interconnected with shafts and differentials. Each meter controls flow through its associated valve according to its setting and the rates through the other meters. In other words, the meter for a component which is to be 35% of the final blend is set for 35%. At any time during the operation, 35% of the total flow must come through that meter. Input shaft speed to the controller of any component is proportional to flow rate of the other components; output shaft speed indicates flow through previous meters plus flow through the 35% meter. This output is passed along to the next meter in line. Differentials add its signal at each meter.

Since the system checks itself (total flow must be 100%, the sum of the settings) and further, since positive displacement meters are used, very high accuracy results.

In order to keep wax in a flowable condition, all lines are steam jacketed. Polyethylene is premixed with wax in order to make it flowable. Minor constituents need



This unit upped production better than eight times

not be "diluted" in this way for purposes of proportioning, however. They may be added in increments of 1/20% up to 20%. Major constituents can be adjusted in 1/2% increments up to 100%.

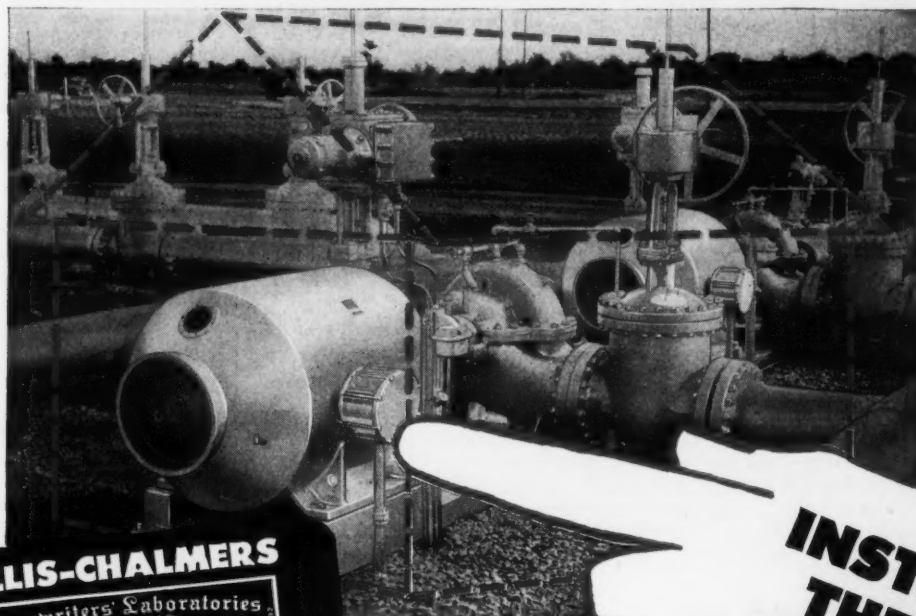
System installed employed three 1 1/2" meters capable of handling a total flow of 25 to 75 gallons per minute. This gives a daily (two-shift) producing potential of about 120,000 pounds of the material. Since there are further steps in the process, however, the potential is not usually realized. Wax is blended and run into a day tank for storage until needed.

Results: Production with the new unit rose to better than eight times that of the old method — 4200 gallons per hour against 500. Accuracy of formulation was improved from about 1% to about 1/10%. But the important results to Sure-Seal were in the improved dispersion and consistent air-free product. In the past two years there has been no trouble in maintaining a clearer, lighter color.

(Proportioning equipment was furnished by Bowser, Inc., Dept. CP, Fort Wayne, Ind. Although in this case the installation was largely designed by Sure-Seal engineers, Bowser maintains an engineering and design department . . . or for more information check CP 2859 on handy form, pages 2 and 3.)

JUNE, 1952

No building to buy!



ALLIS-CHALMERS

Underwriters' Laboratories
INSPECTED
MOTOR FOR HAZARDOUS LOCATION
ELEC CLASS I GROUP D NO. 1

Tube-Type Motors

**INSTALL
THESE
MOTORS
OUTDOORS**

YOU CAN ELIMINATE costly building on many different kinds of installations by using Allis-Chalmers tube-type, totally-enclosed, fan-cooled motors and installing them outdoors. The motors shown here operate outdoors all year round in a tough midwestern climate. Rain, snow, dirt, the weather's worst conditions, do not affect their dependable operation. And the same kind of savings can be made in hundreds of applications in many fields.

Self-Cleaning Feature Saves Maintenance

The cooling system in this unique motor is practically self-cleaning. Cool-

ing air is blown through straight, smooth tubes at sufficient velocity to clean out ordinary dirt. There are no corners or pockets to trap dirt or moisture. If sticky dirt clings, a ramrod will clean the tubes in seconds.

In either indoor or outdoor service, Allis-Chalmers tube-type, totally-enclosed, fan-cooled motors reduce maintenance by keeping themselves clean. Also available in explosion-proof design. Get full details from your A-C Authorized Distributor or District Office. Or write Allis-Chalmers, Milwaukee 1, Wis., asking for bulletin 51B7149.

A-3699

Texrope and Vari-Pitch are Allis-Chalmers trademarks.

ALLIS-CHALMERS



**Sold . . .
Applied . . .
Serviced . . .**

by Allis-Chalmers Authorized Dealers,
Certified Service Shops and Sales Offices
throughout the country.



CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.

TEXROPE — Belts in all sizes and sections, standard and Vari-Pitch sheaves, speed changers.



PUMPS — Integral motor and coupled types from 3/4 in. to 72 in. discharge end up.

When inquiring check CP 2860 on handy form, pgs. 2-3

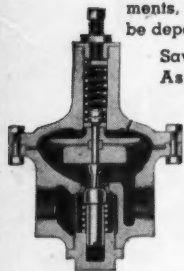


Controlled Pressure for efficient operation

Clark Pressure Reducing and Regulating Valves

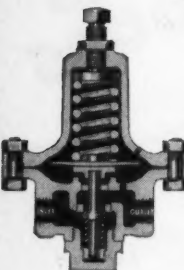
are precision-made for positive pressure control on air, gas or steam lines. Where different types of equipment, with varying pressure requirements, are operated from a common line, Clark Regulating Valves can be depended on to deliver automatically the "just right" pressure to each.

Save on fuel, maintenance and protect expensive equipment. Ask your Clark representative to specify the right Clark valves for your needs . . . or write us direct.



TYPE KRV

Pressure Reducing Valve. Diaphragm Operated - Single Seated Valve. Sizes $\frac{1}{2}$ " to $1\frac{1}{2}$ " for initial pressures up to 250 P.S.I. Reduced pressures to 85 P.S.I.

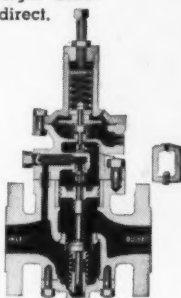


TYPE ORV

Pressure Reducing Valve. $\frac{3}{8}$ " and $\frac{1}{2}$ " Single Seated, Spring Loaded, Diaphragm Actuated. For initial pressures to 250 P.S.I. Reduced pressures to 200 P.S.I.

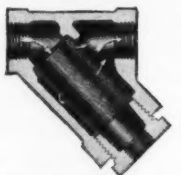
TYPE CRV

Pressure Reducing Valve. Integral pilot controlled, piston operated. For pressure control from "dead end" to full capacity. Sizes $\frac{1}{2}$ " to 6".



QUICK-CLEANING STRAINERS

Remove dirt, scale and grit from steam, fluid and gas lines. Sizes $\frac{1}{2}$ " to 3" I.P.S. For pressures to 250 P.S.I.



THE CLARK MANUFACTURING COMPANY
1848 East 38th St. • Cleveland 14, Ohio

Clark

THE HOME OF DUO STEP LEVERAGE



The complete line of dependable fluid controls

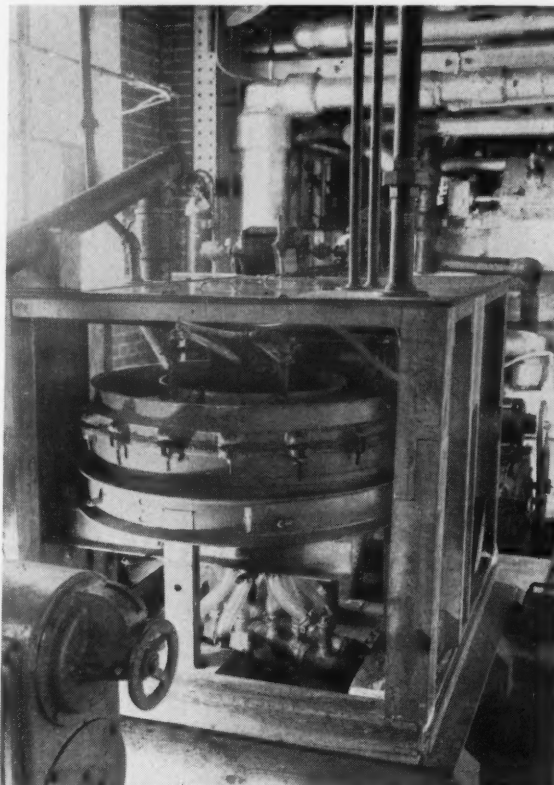
When inquiring check CP 2861 on handy form, pgs. 2-3

NEW SOLUTIONS of processing problems

SRRL process may mean more small plants for solvent extraction . . .

"filtration-extraction" works with cottonseed, rice bran, and soybean; makes good oil and meal

If Southern Regional Research Laboratory's solvent extraction process for cottonseed proves as promising in commercial tests as it has in pilot plant operations, it could extend the use of solvent extraction considerably,



This pilot plant "extraction-filter" is only a little larger than a home washing machine, yet it has a capacity of 24 tons of cottonseed per day. Larger installations, using standard filter units, would be possible in commercial plants

particularly to small plants. The investment required for equipment and the cost of operation are both relatively low, but the quality of the meat and oil which are produced is high.

The amount of solvent required is small, and little floor space is needed.

Process is called "filtration-extraction" because it involves use of a continuous vacuum filter as the major operating unit. Conventional equipment is used for the recovery of the solvent (commercial hexane) from the miscella and the meal.

The seed is prepared in a manner closely similar to that which is used for the preparation of it for hydraulic or screw pressing.

The SRRL pilot plant has worked with rice bran and soybeans, too, after certain modifications were made.

(Further information may be obtained from E. A. Gastrock, Head, Engineering and Development Division, Southern Regional Research Laboratory, U. S. Department of Agriculture, New Orleans, La.)



Switching to FEON VINYON-N saved \$500.00 a year in cloth expense alone on this scraper-discharge filter in the food industry. Cotton cloths had lasted less than a month. Additional savings resulted from reduced "down-time" for cloth changes, lower labor costs, increased production.

Success stories like this are routine with FEON VINYON-N filter cloths. A copolymer of acrylonitrile and vinyl chloride, this new fabric is virtually unaffected by concentrated acids or alkalis, bacteria, and most organic solvents. It has high strength and abrasion resistance, and handles hot materials up to 250° F.

FEON VINYON-N is woven from continuous filaments which have sleek, shiny surfaces that make it ideal for rotary filters — non-blinding, free from plugging, easy to clean. In spun-staple form it is known as dynel and has a soft, resilient texture that is ideal for filter presses. Dynel seals easily, without rim-cutting.

Send us the facts on your job today—we'll be glad to make recommendations and quote prices.

• CARBIDE AND CARBON CHEMICALS CORP.



Send for new FEON Selector Chart containing samples, technical data and case histories.

FILTRATION FABRICS DIVISION

FILTRATION ENGINEERS, Inc.

155 Oraton Street • Newark 4, N.J.

When inquiring check CP 2862 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW SOLUTIONS

New test methods for closures, liners developed . . .

for determining water vapor leakage, material compatibility

Two new methods for testing the liners of screw-cap closures for ability to restrain leakage of moisture, either in or out, and for testing the compatibility of a closure liner with the contents of a package have been announced by Dr. John C. Bird, Lederle Laboratories Division of American Cyanamid Corp., Chairman of Packaging Institute's Committee on Drugs and Pharmaceuticals.

One of the test methods, designated as "PI Closures 1t-51", is a quantitative method of measuring the passage of water vapor through the liner of a tightly closed container. The method has been in use for a year as a *proposed* procedure and has been revised and then issued as a *tentative* procedure.

The other test, designated as "PI Closures 2t-51", is a qualitative test to determine the compatibility of the materials from which a screw-cap liner is fabricated, with the contents of the package.

The institute reports it is important that both tests be made when developing a new package or when packaging a new product so that a satisfactory package can be assured.

(For copies of each test remit 25c direct to Packaging Institute, Dept. CP, 342 Madison Ave., New York, New York.)

How to detect smoke in ventilating units

Four-page bulletin discusses ways and means to guard against panic and damage from smoke introduced into air intake of air conditioning systems. Descriptive material and diagrams are presented for each of three models of smoke indicator. Units give visual or audible warnings.

One model may be flush mounted, which eliminates necessity for wall break-throughs. Remote-reading model is intended for installation where the main duct is some distance from main fan controls. Bul 521 is issued by Ess Instrument Company, Dept. CP, 96 S. Washington Ave., Bergenfield, N.J. When inquiring specify CP 2863 on handy form, pages 2 and 3.

For more information on product at right, specify CP 2864 . . . see information request blank between pages 2-3.

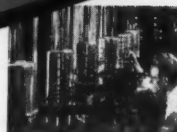
The proper bevel for the perfect weld!



To master temperature, pressure and chemicals use
M. W. KELLOGG
process equipment

There's no particular trick to cutting a nozzle hole in a vessel when its location has been clearly indicated by a qualified layout man. But there is quite a trick to cutting these holes with the proper bevel to produce a perfect welded joint when the nozzle is attached. Perfection in such details is why "Kellogg-fabrication" is specified the industry's more important vessel orders.

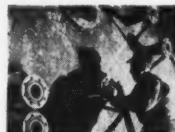
Pressure Vessels
Vacuum Vessels
Fractionating Columns
Drums and Shells
Heat Exchangers
Process Piping
Hi-pressure—Hi-temp.
Power Piping
Bends and Headers
Forged and
Welded Fittings
Radial Brick Chimneys



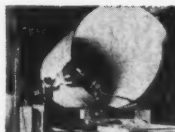
Continuing Study of behavior of metals under stress at high temperatures has produced valuable design data.



Extensive facilities from bending of plate to final machining of precision surfaces permit complete fabrication under the same roof.



Shop Layout Craftsmen are fully experienced in vessel fabrication from nozzle positioning to "knockdown" fabrication for field assembly.



Special Welding Techniques and stress relieving methods assure equipment performance even under severest operating conditions.



Rigid Quality Control, devised by specialists, including chemical and micro analyses as well as mechanical and non-destructive testing.

FOR OPERATORS IN WESTERN CANADA!

The Canadian Kellogg Company Ltd. has established complete shop facilities for the fabrication of all types of piping at EDMONTON, Alberta. Inquire directly or through any Kellogg or Canadian Kellogg office.

The M. W. Kellogg Company (A Subsidiary of Pullman Incorporated) New York, Jersey City, Los Angeles, Tulsa, Houston, Toronto, London, England



Preparation of silicone compounds for later evaluation as coating materials . . .

both Grignard and "direct" methods employed in study of various silane monomers

Recently disclosed, with the lifting of secrecy restrictions, is the experimental work being carried out by the Naval Research Laboratory on the preparation of silicone compounds. This investigation relates primarily to an interest in developing compounds for use in high-temperature organic finishes. Studies, thus far, have involved preparation of certain silane monomers by both the Grignard and "direct" methods. A number of alkyl silicones as well as many aryl-alkyl silicones were prepared using available chlorosilanes. Judgment of the silicone compounds as coating materials, however, must await extensive formulation and evaluation experiments.

The above referred to "direct" method for alkyl chlorosilanes is based on the direct combination of alkyl halide with silicon in the presence of a catalyst. It avoids the difficulties inherent in the handling of ether in the Grignard reaction, but is complicated by difficult reaction control and subsequent separation of the products, which are more numerous than those found in the Grignard method.

A total of 16 methyl and one methylethyl silicones was prepared. Ratios of alkyl group to Si ranged from 1.5 to 2.00 and in the majority of cases, water-ether or water-toluene was the hydrolysis medium. It was theorized that for silicones suitable for paint formulation, the alkyl/ratio should be between 1/1 and 2/1.

Some aryl chlorosilane hydrolysis products were prepared also, even though they are reported to be very brittle and unsuitable for general utilization as a coating material.

Quite a bit of work was done on aryl-alkyl silicones. The study was designed to arrive at the best balance of aryl and alkyl groups using resins prepared from available monomers. It was found that reasonable satisfactory polymers could be obtained using an ether-water or hydrocarbon-water hydrolysis medium. Some 26 compounds were prepared, and on the basis of the work, it was found that the best polymers were those having about one alkyl group (methyl) to one aryl group (phenyl).

From this work it was indicated that resinous materials, exhibiting heat-stable properties beyond those currently available commercially, are possible. However, it was emphasized that the disclosure was a report of progress to date and was not to be construed as being complete. The preparation of resinous materials and their evaluation will be the subject of a subsequent report.

(Summarized from NRL Report 3870, U.S. Department of Commerce, Office of Technical Services, Washington 25, D.C.)

Life of tipped hammermill hammers 8 times that of standard ones . . .

grind is still good after 1000 hours of operation on 800 to 1000 tons of alfalfa meal

Hammermill hammers tipped with Carboloy cemented carbide have been found to last much longer than conventional hammers in the grinding of alfalfa meal. In tests, the tipped hammers were found to remain sharp and true

FISCHER & PORTER

P-4

PNEUMATROL

the 1st

Flexible, die-cast building-block construction—six modes of control; right or left or dual case mounting, or point-of-measurement mounting.

High capacity (1.8 SCFM), non-bleed relay valve.

Double slack diaphragm design eliminates dead space and critical relay adjustment.

Large integral air passages permit maximum response, eliminate piping.

Accessible capillary restriction and integral filter.

Differential input assembly is an integral part of controller, assuring tracking.

Rugged, self-aligning "Barrel-Bearings"—eliminate friction.

Jewel-mounted stainless steel flapper, rotatable around fixed stainless steel nozzle for proportional band adjustment and reversal of action.

Self-aligning, rigidly-coupled bellows assembly.

Beryllium-copper flexure spring, pivot-pin coupled to bellows without backlash or side thrust.

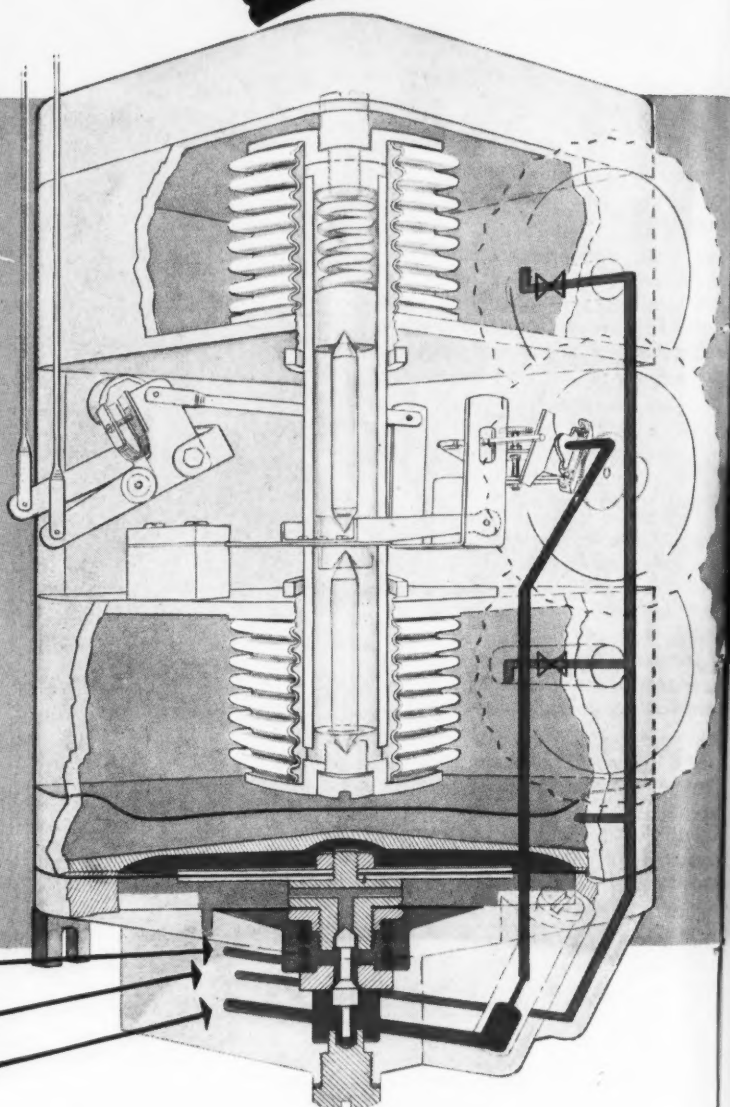
Long-path adjustable resistor valves for reset and derivative, O-ring sealed, non-jamming, calibrated 0.02—5 min. or 0.2—50 min.

Independent derivative vibration stabilizer; pneumatic balance action.

relay output (to transfer switch)

relay output (from transfer switch)

supply air



©1944

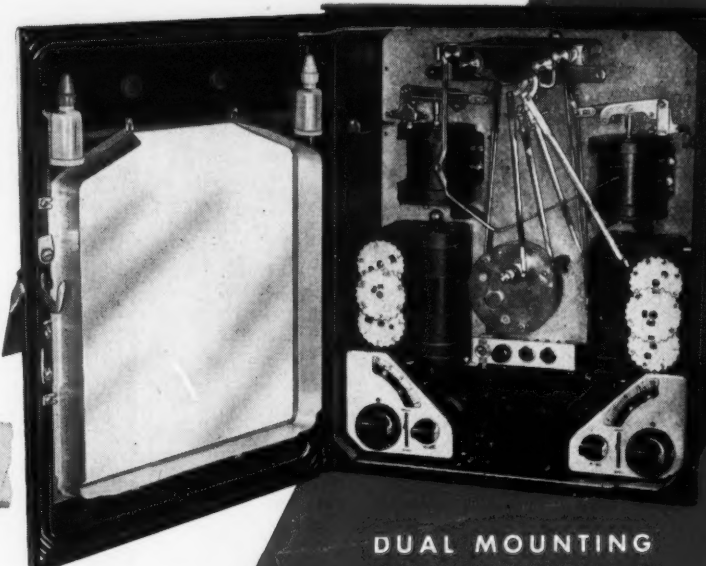
ALL PURPOSE

for either instrument or
point-of-measurement
mounting

Pneumatic Controller

- for • rate of flow
• pressure
• differential pressure
• temperature
• liquid level
• viscosity

The P-4 Pneumatrol is the first controller suitable for point-of-measurement installation as well as either single or dual case mounting. Knowing more about the many uses of the P-4 may lead to closer control of your processing operations. Get all the data NOW. The convenient coupon will bring you full information by return mail. Send for it while the subject is fresh in your mind.



DUAL MOUNTING

- Complete mounting of transfer switch and regulator within the case.
- Greater panel space economy.
- New die-cast aluminum case and door.
- All accessories visible through door.
- External knobs for instant manual operation.
- Everything is inside the case, eliminates external manual panels.

The P-4 incorporates both proportional and derivative actions with automatic reset response for precise positioning... in stacked units, as shown in this transparent model.

For pneumatic-set, point-of-measurement control for use with graphic panels and miniature instruments, particularly where transmission lag must be eliminated for perfect control. Shown here mounted on the popular F & P 52 OK pneumatic transmitter.



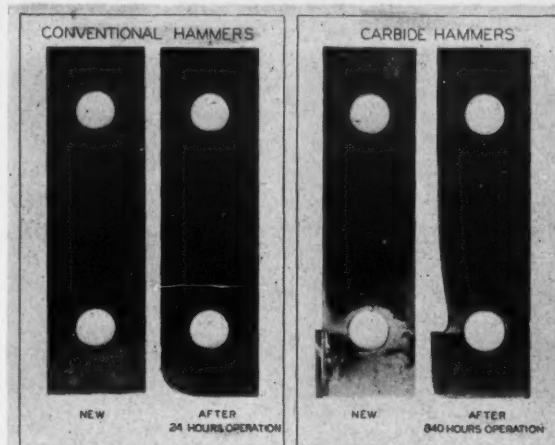
FISCHER & PORTER COMPANY

360 COUNTY LINE ROAD, HATBORO, PENNA.

Please send me by return mail complete specifications on your new P-4 Pneumatrol.

NAME _____
POSITION _____
COMPANY _____
ADDRESS _____
CITY & STATE _____

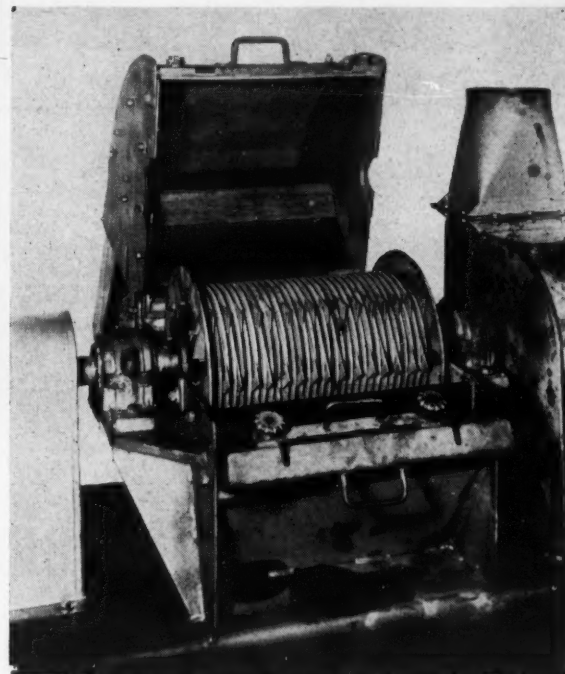
NEW SOLUTIONS of processing problems



The conventional hammer would have to be reversed when worn as much as the one shown above. The carbide tipped hammer still has some service life left

after 1000 hours of operation during which time 800 to 1000 tons of meal were ground, using a 3/64" screen. Standard hammers last about one-eighth as long, even when they are reversed to expose a new cutting edge when one edge is worn. Tipped hammers do not have to be reversed, because the tip outlasts the rest of the hammer.

Other advantages result. Only half the number of tipped hammers are needed for the same cutting efficiency. The material ground with the carbide tipped hammers weighs



If carbide tipped instead of standard hammers were used in this hammermill there would be 60 of them instead of 120, but the capacity and cutting efficiency would remain about the same

more per cubic foot and therefore represents some advantages in bagging, warehousing and shipping.

(Hammers are supplied by The Heil Co., Dept. CP, 3000 Montana Ave., Milwaukee, Wis. . . . or for more information check CP 2866 on handy form, pages 2 and 3.)

When inquiring check CP 2865 on handy form, pgs. 2-3

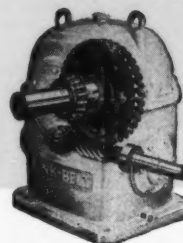
Which of these speed reduction jobs is yours?

High-ratio reduction with right-angle takeoff?

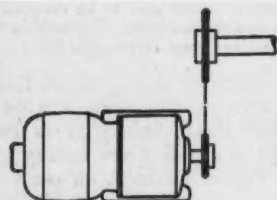


Get a LINK-BELT Worm Gear Drive

Reduction ratios: 3.1:1 to 8000:1. Torque: 1400 to 123,000 in. lbs. Output shaft rpm: 0.22 to 564. Drawing shows motorized P.I.V., variable speed and worm gear drives direct-coupled.

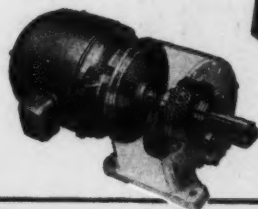


Restricted space* for mounting?

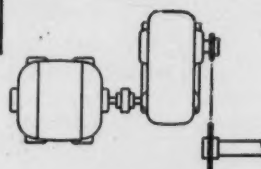


Get a LINK-BELT Gearmotor

Reduction ratios: 6.2:1 to 292:1. Hp range: 1 to 30. Output shaft rpm: 6 to 280. Drawing shows gearmotor with roller chain drive.

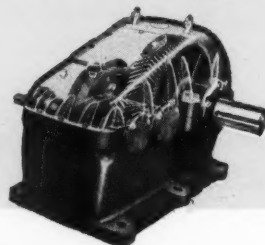


High hp with parallel shaft takeoff?



Get a LINK-BELT Herringbone Gear Drive

Reduction ratios: 2.84:1 to 318:1. Hp range: 1/2 to 1000. Output shaft rpm: 2 to 600. Drawing shows motor with herringbone gear and roller chain drives.



Yes, LINK-BELT builds all 3

NO LONGER need speed reduction be the limiting factor in a design or application problem. Because no one speed reducer solves every reduction problem, Link-Belt builds all three—Helical, Herringbone and Worm. Now it

is only necessary to choose the right type of Link-Belt enclosed gear drive . . . and select the hp and reduction ratio that fit your requirements. You can get complete engineering information from the Link-Belt office near you.

LINK-BELT
ENCLOSED GEAR DRIVES

LINK-BELT COMPANY Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa), Sydney (Australia). Offices, Factory Branch Sales and Distributors in Principal Cities.

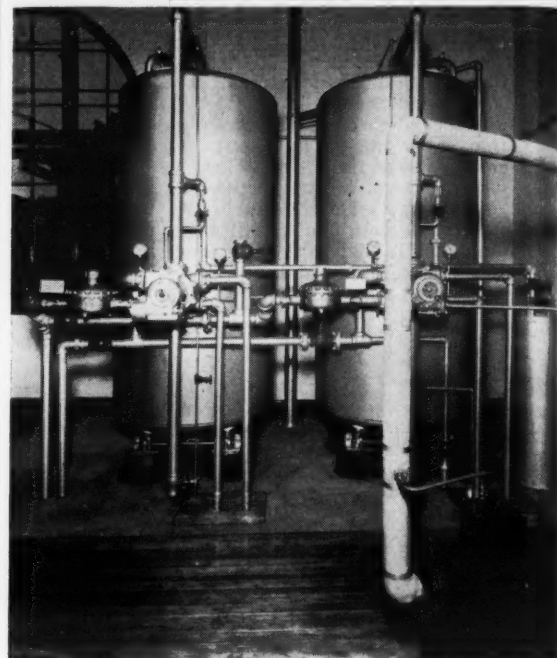
When inquiring check CP 2867 on handy form, pgs. 2-3

NEW SOLUTIONS of processing problems

Ion exchange techniques save 100 lb of CrO₃ daily from plating wastes . . .

solve problem of what to do with wastes that would need expensive treatment before disposal

The plating room in a large aircraft plant near New York City is able to chalk up savings of more than 100 pounds per day of chromic acid, thanks to the use of ion exchange techniques in treating anodizing solution and rinse water.



Corrosion resistant anion exchange tank (left) and cation exchange tank (right) are recovering critical chromic acid from plating process

That isn't the whole story, by far. Even if the plant didn't try to recover chromic acid for reuse, as it does now, it would have to treat the waste before disposal—at an estimated operating cost of \$63 per day (including lost chromic acid). Recovery by ion exchange costs \$17 per day. System consists of a cation exchanger to remove metallic cations from the strong chromic acid anodizing solution, and an anion exchanger to recover the chromate from dilute rinse solutions.

The anodizing bath is operated at a pH between 0.7 and 0.9 and with fifty to seventy grams per liter of CrO₃. Each day, a portion of the bath is withdrawn and passed through a bed of a high-capacity cation exchanger, Permutit Q. All of the aluminum and other metallic cations are removed from this portion and hydrogen ions are substituted. The effluent solution has a very low pH and is returned and mixed with the remainder of the chrome bath, lowering the overall metallic content and pH somewhat. Anodizing can be continued during this treatment. Treatment cycle is short—usually less than one hour. Experience has shown that this length of time is sufficient to maintain metallic ion concentration at reasonable levels (permissible concentration is high). The pH of the bath can be held within very close limits and very little CrO₃ need be added.

When the Permutit Q becomes exhausted, it is regenerated with sulfuric acid. Effluent, containing the metallic cations, is sent to waste. Before regenerating, however,

CHEMICAL PROCESSING

NEW SOLUTIONS of processing problems

it is necessary to displace any chromic acid in the bed with water, which brings about some desirable dilution to compensate for drag-out (acid remaining on plated metal as it is removed from bath) and evaporation losses.

Treatment of Rinse Water

Rinse is sent through a bed of anion exchanger, Permutit S, which removes the chromate ions from solution and substitutes hydroxyl ions. Since Permutit S also functions as a water demineralizer and since the rinse is initially demineralized water, the water can be returned to the rinse tank after treatment, providing advantages of this kind of water for rinsing. This saves water, and in some cases, where hot rinses are used, it conserves heat too. Flow rate of treatment may be controlled so that the pH of rinse tank is kept at value giving most satisfactory surface.

When the Permutit S is exhausted, the flow is either halted or shifted to an alternate unit, and the resin is regenerated with caustic soda. The alkaline effluent contains all the chromate and is passed through the cation exchanger, which removes the hydroxyl ions and leaves free chromic acid. This can be returned directly to most anodizing and stripping baths, but some evaporation may be necessary if solution is being returned to plating bath.

(Summarized from article prepared by C. F. Paulson, Special Applications Engineer, The Permutit Company, Dept. CP, 330 W. 42nd St., New York 36, N. Y.)

No engine overhaul in 2½ yrs using synthetic lubricant — each 6 mos with petroleum . . .

fleet of 6 fork trucks used 2 qts premium-grade motor per day, now use less than ½ pint synthetic per day

The maintenance report of a large manufacturing company discloses that a fleet of six gasoline-powered fork lift trucks, which formerly consumed 2 quarts of premium-grade petroleum motor oil per day, have operated for the past 2½ years on less than ½ pint of Ucon synthetic lubricant per day.

During the 2½ years, the lubricant has been changed only twice a year, and the motors have not required overhauling. The petroleum motor oil used had to be changed every week, and the motors had to be overhauled every 6 months because of badly stuck rings, excessive smoking, and high oil consumption.

Ucon synthetic lubricant possesses excellent lubricating qualities, cleanliness characteristics, and solvent action for oil residues. Truck operators report that trucks start much faster than with petroleum oil, especially in cold winter weather. Elimination of oil smoke from work areas has been an outstanding benefit since switching to the synthetic. Management considers the elimination of overhauling costs a big boon.

Maintenance report further states that when the petroleum oil was drained from the crankcase of each truck and replaced with Ucon lubricant, the first change dissolved the sludge in the engine and became dirty. Ucon was changed twice during the first 2 weeks, but only at intervals of 6 months thereafter. Filters, however, were changed regularly whenever the lubricant began to appear dirty. Oil consumption after the initial 2 weeks dropped to less than ½ pint per day.

(Carbide and Carbon Chemicals Company, Division of Union Carbide and Carbon Corporation, Dept. CP, 30 East 42nd Street, New York 17, N. Y. . . . or for more information check CP 2868 on handy form, pages 2 & 3.)



ALCOA ALUMINA FOR FINE GRINDINGS



Long the symbol of prescription druggists, the mortar and pestle represents fine grinding—and fine grinding calls for ALCOA Alumina.

It is no coincidence then, that Coors Porcelain Company, Golden, Colorado, chose ALCOA Alumina as the main component of their new mortar and pestle. Completely vitrified and non-porous, the alumina surfaces are extremely resistant to abrasion . . . unaffected by tungsten carbide scribes . . . only slightly scratched by diamond. ALCOA Alumina is especially suited to this product because its purity and hardness (9 on Moh's scale) permit extra fine grindings without fear of contamination.

ALCOA Alumina is aluminum oxide, a crystalline material with very sharp edges and corners. It is from this characteristic that alumina derives its

value as an outstanding, fast-cutting abrasive.

ALCOA Alumina is only one of the versatile ALCOA Chemicals used throughout industry to make better products do a better job. Electrical insulators . . . high-temperature refractories . . . grinding balls . . . rubber . . . glass . . . are but a few of the hundreds of products which have been measurably improved by ALCOA Chemicals. Perhaps they can benefit your product. Write to: ALUMINUM COMPANY OF AMERICA, CHEMICALS DIVISION, 606F Gulf Building, Pittsburgh 19, Pennsylvania.

Alcoa Chemicals



ALUMINAS and FLUORIDES

ACTIVATED ALUMINAS • CALCINED ALUMINAS • HYDRATED ALUMINAS • TABULAR ALUMINAS • LOW SODA ALUMINAS
ALUMINUM FLUORIDE • SODIUM FLUORIDE • SODIUM ACID FLUORIDE • FLUOBORIC ACID • CRYOLITE • GALLIUM

When inquiring check CP 2869 on handy form, pgs. 2-3

Find Very Interesting Utility in Group of PVC Resins

A GROUP of resins from Firestone's current line, as well as several which are at present being produced in pilot plant quantities, were announced recently. The following outlines their applications, features, properties:

Films and Coatings

Uses: Forms clear, colorless films, or can be blended with pigments to give colored coatings. Can be injection and compression molded without added plasticizers.

Features: Inert to inorganic chemicals, heat, and light, yet is soluble in selected organic solvents. Moisture absorption and moisture vapor transmission values are reported very low. Can be heated in air to 350°F for 100-200 hours without apparent loss in physical properties.

Description: Exon 400 XR-61 is an inert, non-flammable, fluorinated thermoplastic resin. It may be applied as received by brushing, dipping, or spraying. Solutions in ketone-aromatics have been found to be satisfactory for coating purposes. For brushing or dipping, a relatively high solids solution has been found satisfactory, and for spraying, a solution of not over 10% resin is recommended. Specific gravity is 1.68-1.75, average relative viscosity 1.5, and average bulk density 0.75-0.80 gm/cc.

All Forming Operations

Uses: Supplied as a resin or a fused uniform pellet that can be calendered, laminated, formed, injection or compression molded, or extruded in conventional plastic equipment. Formed pieces can be machined, sawed, sanded, and buffed. Ketone solvents can be used to form a strong bond between individual pieces. Has interest to producers of hardware items, electrical equipment, plastic piping, novelties, etc.

Features: Is tough and rigid.

Description: Exon 800 XR-60 is a thermoplastic resin with a specific gravity of 1.03. Various temperatures for processing are: fusion 260-300°F, molding 380-400°F, calendering 320-340°F, laminating 350-370°F.

Film Forming, Impregnating

Uses: Film forming and impregnating operations.

Features: Possesses excellent mechanical stability. Films cast from resin exhibit good heat, light stability.

Description: Exon 700 XR-59 is a latex containing a vinyl chloride copolymer resin. Films can be cast from unplasticized latex; however, the addition of approximately 20% DOP produces optimum results. It is compatible with the conventional vinyl plasticizers,

stabilizers, and pigments. It is white in color, has a specific gravity of 1.16-1.17 (latex) and 1.36 (resin). Relative viscosity of the resin is 2.36.

Plastisol Pastes For Coating, Molding

Uses: Can be readily dispersed in plasticizer to form a plastisol paste for casting thin films, coating paper or fabric, and for dip coating and molding operations.

Features: Reported to impart excellent heat and light stability, physical toughness, and chemical resistance inherent in polyvinyl chloride resins.

Description: Exon 600 XR-54 is a high molecular weight polyvinyl chloride resin. For many uses the dispersion of resin in plasticizer can be accomplished by simple mixing equipment. In some cases it may be found necessary to use a 3-roll ink mill or ball mill to obtain the desired dispersion. Common vinyl plasticizers can be used with the resin, but the plasticizer's dispersion qualities are a consideration.

Addition of diluents to a paste formulation improve flow properties and afford pastes of low plasticizer content. Combinations of a straight chain aliphatic hydrocarbon and an active solvent (ketones, esters, aromatic hydrocarbons) are recommended for stable dispersions of minimum paste viscosity.

The resin is a white powder having specific gravity of 1.40 and average relative viscosity of 2.55.

For Lower Process Temps

Uses: May be used in compounds requiring low processing temperatures, either alone or in combination with Exon 900. Its processing characteristics are such that it is recommended for use in unplasticized compounds for rigid applications.

Features: Characterized by excellent heat and light stability, physical toughness, chemical inertness, and ease of processing.

Description: Exon 402 is a modified polyvinyl chloride resin of moderately high molecular weight polymerized in the suspension system. It is a white powder of 1.41 specific gravity. Average bulking density is 0.55 gm/cc, and average relative viscosity is 2.05.

Electrical Products

Uses: Wide range of electrical products may be produced by combining with plasticizers, stabilizers, fillers, color pigments, lubricants, and extenders.

Features: Excellent electrical properties; color, heat, light stability; physical toughness; chemical inertness.

Description: Exon 500 is a high molecular weight polyvinyl chloride resin. Amounts and types of various compounding materials used with it are entirely dependent on the end product desired. The resin is a white powder with 1.40 specific gravity. Average bulking density is 0.50 gm/cc, average relative viscosity 2.55.

Good Finish Sheeting, Extrusions

Uses: Has found use in such applications as calendered film and sheeting, and extruded hose and belting. Particularly useful in those applications where surface appearance is important, since anything from a very high gloss to a satiny finish may be obtained by proper compounding and processing.

Features: Characterized by excellent color, heat and light stability, physical toughness, chemical inertness, and ease of processing.

Description: Exon 900 is a high molecular weight polyvinyl chloride resin polymerized in the suspension system. It is offered as a white powder having a specific gravity of 1.40. Average bulking density is 0.05 gm/cc, and average relative viscosity 2.55.

Unplasticized Sheeting, Printing Inks

Uses: Can be used as a very soft compounding resin or alone as a resin to produce unplasticized vinyl sheeting. Can also be used as a solution resin in the manufacture of vinyl printing inks.

Features: Compatible with the conventional vinyl plasticizers, stabilizers, and pigments. Because of its lower molecular weight, decreased processing temperatures can be affected by the use of the resin. It is characterized by good heat and light stability for a resin of its high thermoplasticity.

As a vinyl printing ink resin, it imparts good blocking and mark-off characteristics. Solutions up to 20% solids in methyl ethyl ketone can be readily prepared. Diluents such as toluene and VM&P naphtha can be used.

Description: Exon 450 resin is a vinyl chloride copolymer of intermediate molecular weight. Form is a white powder, specific gravity 1.36, average bulk density 0.60 gm/cc, and average relative viscosity 1.75.

(First four of these resins — Exon 400 XR-61, 800 XR-60, 700 XR-59, and 600 XR-54 — are currently produced in pilot plant quantities, but full-scale production is expected to be reached in the near future. Latter four — Exon 402, 500, 900, and 450 — are from maker's current line. Firestone Plastics Company, Dept. CP, 350 Fifth Avenue, New York 1, N. Y. . . . or for more information check CP 2870 on handy form, pages 2 and 3.)

**Suggest three alkyl oils
as replacement for
Chinawood Oil . . .**

gellation times (at 580°F) vary from 30 to 60 min
for these chemically upgraded products

Uses: In enamel and varnish formulations.

Features: Can serve as possible replacements for
Chinawood Oil in above mentioned formulations.

Description: Falkowood products consists of a series
of three similar, chemically upgraded oils. Some of their
characteristics follow:

Falkowood 48

—is of the alkyl type wherein the dibasic acid is pred-
icated on the use of maleic anhydride or its homologues,
and the oil modifier is linseed oil. Its fast bodying rate
makes it useful for varnish cooking and its hard drying
for use in enamel formulations. Specifications:

Non-volatile, %	100
Viscosity	Z-21
Color	7-9
Acid number	12-18
Iodine number	135-145
Saponification number	210-220
Pounds/gallon	8.15-8.25
Gellation time, 580°F	60 min

In preparation of a 25-gallon oil length varnish, in com-
parison with Chinawood Oil, the Chinawood Oil varnish
had a tack free period of 4 hours versus 6-¾ hours for
the Falkowood Oil, and a dry hardness of 3½ hours ver-
sus 4 hours.

Falkowood 51

—is similar to 48 but is considerably more heat convertible.
Gellation of this oil ensues between 30 to 45 minutes at
580°F. It offers a hard fast dry. Specifications:

Non-volatile, %	100
Viscosity	Z1-Z2
Color	7-9
Acid number	12-18
Iodine number	135-145
Saponification number	210-220
Pounds/gallon	8.15-8.25
Gellation time, 580°F	40 min

In preparation of a 25-gallon oil length varnish in com-
parison with Chinawood Oil, the Chinawood Oil varnish
had a tack free period of 4 hours versus 6½ hours for
the Falkowood Oil, and a dry hardness of 3½ hours ver-
sus 4 hours.

Falkowood RT Pale

—is of the alkyl type wherein the dibasic acid is pred-
icated on the use of maleic anhydride or its homologues,
and the oil modifier in this case is refined fish oil. This
oil is quite heat convertible (gellation 30-45 minutes at
580°F) yet retains the excellent properties of fish oil, such
as its high response to solvents, flow, hardness etc. Specifi-
cations:

Non-volatile, %	100
Viscosity	R-T
Acid number	8-12
Color	6-8
Saponification number	205-225
Iodine number	150-160
Pounds/gallon	8.05-8.15
Refractive index	1.4880
Gellation time, 580°F	45 min

In preparation of a 25-gallon oil length varnish in com-
parison with Chinawood Oil, the Chinawood Oil varnish
has a tack free period of 5 hours versus 8 hours for the
RT Pale, and a Sward hardness of 14 versus 12.

(Products of Falk & Co., Dept. CP, P. O. Box 1075,
Pittsburgh 30, Pa. . . or for more information check CP
2871 on handy form, pages 2 and 3.)



potash chemicals

mining
refining
manufacturing

CAUSTIC POTASH all standard grades

CARBONATE OF POTASH all standard grades

POTASSIUM CHLORIDE refined and
technical grades

POTASSIUM SULFATE

LIQUID CHLORINE

FERRIC CHLORIDE

● *Three-Way Control means savings to you.* You can
depend on *International* for prompt deliveries of
potash chemicals in the tonnages you want and quality
that meets your specifications. With large mining
and refining facilities at Carlsbad, New Mexico,
and its electrochemical manufacturing plant at
Niagara Falls, New York, *International* provides an
exclusive three-way control in the production of
potash chemicals—*Mining, Refining, Manufacturing.*

Address inquires to

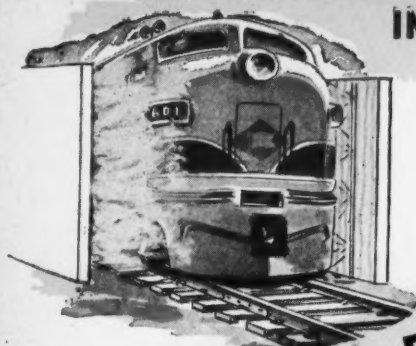
Industrial Potash Dept.

potash division

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

General Offices: 20 North Wacker Drive, Chicago 6
61 Broadway, New York 6

When inquiring check CP 2872 on handy form, pgs. 2-3



INDUSTRIAL CLEANERS

As an ingredient in acid or alkaline industrial cleaner formulations, Marasperse prevents re-deposition of removed soil and promotes streak-free rinsing.

VERSATILE... EFFECTIVE MARASPERSE

THE
Low Cost DISPERSANT

Marasperse prevents agglomeration of fine particles in water by setting up negative electrical charges on their surfaces and making them mutually repellent. When Marasperse is added... Thick, pasty slurries become water-thin... Thin slurries remain fluid even if solids content is greatly increased... Dilute dispersions stay uniform and non-settling.



PIGMENTS

Uniform coloring of wall-papers is easily obtained with Marasperse deflocculated pigments.

This is one of a series of ads highlighting applications of Marasperse. Let us cooperate with you in investigating the use of Marasperse in your products or processes. Write for additional information and samples.



MARATHON CORPORATION

CHEMICAL DIVISION

518 N. MONROE ST. • ROTHSCHILD, WISCONSIN

When inquiring check CP 2873 on handy form, pgs. 2-3

MATERIALS

Interesting thickening and stabilizing properties in colloid series...

hydrocolloids prepared and standardized for large variety of specific functions

Seaplant Chemical Corporation has a variety of interesting hydrocolloids obtained from sea plants (mainly the red sea plants called Irish Moss) that find application in gelling, binding, bodying, thickening, suspending, stabilizing, modifying, and precipitating.

Each is prepared and standardized for a specific function by selection of raw stock, controlling refining procedures, and final blending. Products are reported to be dependably pure and uniform; odor and flavor of seaweed are said to be extremely slight or entirely absent. Most of the varieties are light amber to colorless, free-flowing flaky powders with particles no larger than will pass 40 mesh screen. They are suitable for use (under proper conditions) in dry mixes as well as in solutions. Solubility is exhibited only in water. Following are specific items in the series:

SeaKem Type 1 — An unmodified extractive from bleached Irish Moss. Makes a buff-colored, clear solution with a pH between 6.5 and 7.0. Used in pharmaceutical emulsions and gels where clarity and low pH are important.

SeaKem Type 4 — Light-colored Irish Moss extractive standardized to produce a viscosity of 110°M in a 2% water solution. Being used in toothpaste formulations.

SeaKem Type 401 — Agar Agar from Gracilaria seaweed used for stabilizing graphite suspensions.

SeaKem Type 402 — Red seaweed extractive standardized to a viscosity of 350°M in a 2% water solution. Has exceptionally rapid solubility in cold water, does not set to a gel, and has a higher reactivity with proteins than Irish Moss extractives. Used in pharmaceutical foams, tooth powder, shampoos, cosmetics, etc.

SeaKem Type 502 — a bleached Irish Moss pulverized to pass 200 mesh. Used in water vehicle paints, leather finishes, and other industrial applications where odor and flavor are not a deterrent.

(Products of the Seaplant Chemical Corporation, Dept. CP, 63 David Street, New Bedford, Mass. . . or for more information check CP 2874 on handy form, pages 2 and 3.)

Details chemical resistance of plastic protective coatings

Five-page bulletin tabulates chemical resistance of rubber, neoprene, and plastisol protective coatings. Over 90 compounds are keyed to these three materials and their corrosion-resistant properties. Compounds and reagents are listed according to maximum concentrations and temperature range. Tables are intended as a general guide since variables such as pH, impurities in chemicals, thickness of coating, and others, will affect the resistance and life of materials.

According to bulletin, plastic coatings can be applied to almost any size or shape of product. Coat thicknesses range from a few thousandths of an inch to 1/8 or 1/4 inch, and may be applied by dipping, slush molding, spraying or brushing. "The Chemical Resistance of Neoprene, Rubber and Plastisol Coatings" is issued by Plastex Products Company, Dept. CP, 312 Dobbs St., Marietta, Ga. When inquiring specify CP 2875 on handy form, pages 2 and 3.

Magnolia Airco

Nitrogen Hydrogen Rare Gases and Liquids

Are the Standard of Quality
in the Southwest

Magnolia Airco gases — oxygen, nitrogen, hydrogen, argon, helium, neon, krypton, xenon, and liquid oxygen, nitrogen and air — are known throughout the Southwest for their high purity, unvarying uniformity and dependable quality. This uniformity and adherence to specifications of Magnolia Airco gases, and rare gas mixtures, are definite factors contributing to their satisfactory use.

And, no matter where your plant is located in the Southwest, you can depend on Magnolia Airco for a steady, dependable gas supply, packaged to meet your needs.

For more information, write your nearest Magnolia Airco office.



AIR REDUCTION MAGNOLIA CO.

A Division of Air Reduction Company, Incorporated
Beaumont • Corpus Christi • Dallas • El Paso • Fort Worth • Hobbs • Houston • Oklahoma City • San Antonio • Shreveport • Tulsa • Wichita Falls

Southwestern Headquarters for Oxygen, Acetylene and Other Gases . . . Carbide . . . Gas Welding and Cutting Machines, Apparatus and Supplies . . . Arc Welders, Electrodes and Accessories.

When inquiring check CP 2876 on handy form, pgs. 2-3

CHEMICAL PROCESSING

MATERIALS

Swells 20% less than other rubber cmpds in hydrocarbons . . .

has excellent low temperature properties down to -65°F

Uses: Synthetic rubber compound for fabricating O-rings and other molded seals that are intended for using hydrocarbon fuels at temperatures down to -65°F.

Features: The compound is reported to have excellent low temperature characteristics, and undergoes 20% less volume change in the presence of hydrocarbon fuels than conventional materials.

Description: 1009-10 is a synthetic rubber compound. Shore A hardness is 70°, tensile strength 1500 psi, elongation 200%, and bending moment of 0.75 inch-pounds at -70°F.

Following table shows test results after 24-hr immersion in various types of MIL-H-3136 fluid at room temperature:

	MIL-H-3136 Fluid Type		
	I	II	III
Hardness, Shore A	60°	60°	59°
Tensile strength, psi	1336	938	1119
Elongation, %	195	180	185
Volume increase, %	3.1	33.8	26.5

(Product of the Parker Appliance Company, Dept. CP, 17325 Euclid Ave., Cleveland 12, Ohio . . . or for more information check CP 2877 on handy form, pages 2 and 3.)

N-ethyl-maleimide available for first time . . .

in commercial quantities and at low cost

Uses: Because of its strong inactivation of the sulfhydryl group, compound should be of interest to investigators desiring this property, as in rubber compounding, mercaptan separation in the petroleum industry, and in wool shrinkproofing.

Description: N-ethyl-maleimide is now offered commercially and at low cost. It has been found valuable in the studies of peptide synthesis involving transpeptidation of amino acids by glutathione.

(Available from Schwartz Laboratories, Inc., Dept. CP, 202 East 44th St., New York 17, N. Y. . . . or for more information check CP 2878 on handy form, pages 2 and 3.)

For more information on product at right, specify CP 2879 . . . see information request blank between pages 2-3.

WHERE IT COUNTS MOST...



The success of your product begins in our laboratories. No matter what the care exercised in production and application, basic research and development remain the primary factors.

Here at ADVANCE, the top skills and years of experience are behind our specialty products for the processing industries.

As pioneers responsible for many new developments for these industries, ADVANCE chemists and technicians are concerned solely with evolving quality ingredients to make better products.

These same well-staffed ADVANCE technical laboratories are always available to help solve any special problem in formulation you may have. Inquire today without obligation.

ADVANCE SOLVENTS & CHEMICAL CORP.

245 FIFTH AVENUE, NEW YORK 16, N. Y.

ADVANCE products include: VINYL STABILIZERS • FUNGICIDES • PLASTICIZERS • PAINT DRIERS • LUBE OIL ADDITIVES • METALLIC STEARATES • PAINT INDUSTRY SPECIALTIES



What A Difference!

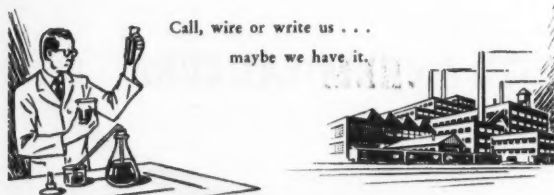


Breeding and background don't just happen—they result from careful cultivation and long periods of development.

For quality in SULFONIC ACIDS, background is also essential. If your requirements are exacting and you want pedigreed products, why not benefit from OUR BACKGROUND—long years of experience in Sulfur Chemistry.

A new plant with a UNIQUE Sulfonation process is under construction and will be in operation soon.

Meanwhile, pilot plant quantities of many unusual Sulfonates are available . . . Do you have a "pet" project requiring one?



Call, wire or write us . . .
maybe we have it.

ORGANIC CHEMICALS DIVISION

TENNESSEE
619 Grant Building,



CORPORATION
Atlanta, Georgia

When inquiring check CP 2880 on handy form, pgs. 2-3

Page 24

Report Easier Processing of Rubber, Plastics Using High-styrene Resin

USES: High-styrene copolymer type thermoplastic resin for reinforcing and plasticizing natural and synthetic rubbers, as well as plastic compounds. Proving effective as a processing aid in shoe stocks, wire and cable stocks, rubber tiling, hard rubber goods and battery cases, and other similar applications (golf ball covers, artificial leathers, rubber hose, etc.).

Features: Compounders without banbury mixers can add the resin readily to stocks on an open mill—

Minimum mixing temperature, °F	150
Plasticity (Mooney @ 212°F, half rotor)	30-40
Plasticity (Mooney at 250°F)	15
Optimum banbury temperature, °F	210-230

Molders of plastics (polystyrene resins) can take advantage of the resin's impact strength, thermoplastic properties, and ease of molding—

Injection molding temperature, °F	300-500
Injection molding pressure, psi	10,000-30,000
Compression molding temperature, °F	260-350
Compression molding pressure, psi	700-1500
Bulk factor, lb/cu ft	30

The resin reduces the "nerve" of lightly loaded compounds, permitting better extrusions. Electrical properties offer advantages to wire and cable makers.

Dielectric constant	2.4-2.6
Power factor, %	0.2-0.5
Moisture absorption, 158°F for 168 hr, mg/sq in	5.0
Water absorption, 24 hr, %	0.25

Chemical resistance of the resin shows up in the manufacture of flooring, hard rubber, and wire and cable. It has *good* resistance to acids and alkalis as well as *fair to good* resistance to oils. However, it has *poor* resistance to aromatic solvents.

Description: Darex Copolymer 43E thermoplastic resin has a styrene content of approximately 85%. One per cent antioxidant is incorporated. Physical properties of the unvulcanized resin are tabulated below:

Tensile strength, psi	5300
Ultimate elongation, %	4
Rockwell hardness, X15	75-85
Softening temperature, °F	120-130
Appearance	fine white particles
Specific gravity	1.05
Ash, %	<0.5
Moisture %	<1

(Product of the Dewey and Almy Chemical Company, Department CP, Cambridge 40, Massachusetts . . . or for more information check CP 2881 on handy form, pages 2 and 3.)

Lead Cyanamide: An Active Anti-rust Pigment

**Its use achieves a saving of lead without
loss of other desirable properties**

EXPERIMENTS were conducted by a German firm, Duisburger Kupferhütte, to develop a lead pigment which would afford protection against rust, but at the same time not require a greater consumption of stand oil or linseed oils, and yet effect a considerable saving of lead. This aim was achieved by the use of lead cyanamide which while saving lead has a number of advantages as far as painting is concerned, when compared with other pigments used for the same purpose. Moreover, high proportions of extenders can be added without losing or diminishing any of its anti-rust action.

Lead cyanamide is obtained by a precipitation process and is a lemon-colored, micro-crystalline pigment. It is very voluminous and has a specific gravity of about 6.8 (compared to about 9 for red lead).

It reacts with atmospheric contaminants (CO_2 , SO_2 , H_2S , H_2SO_4) and the acidic breakdown products of linseed oil and transforms them into insoluble non-corrosive

compounds. Cyanamide split off from lead cyanamide has an alkaline passivating function owing to its amphoteric character and a tendency to form ammonia.

As all the lead in the pigment is divalent, soap formation is rapid and thorough and this explains the excellent anti-rust action. Despite the high reactivity as regards soap formation, lead cyanamide shows very little thickening on storage. Only after a considerable period of time, for instance about 6 months, is there any tendency to thicken. Even then, only a mild settlement occurs which can be readily removed by stirring or thinning. Thus, there is no loss of material occasioned through residues becoming useless.

It is reported that all lead cyanamide paints are extremely easy to apply. In addition, they possess a high covering power and, owing to their high brushability and relatively low specific gravity of the pigment, a high spreading rate is attained. The spreading rate of a

paint, when using the same binders, depends on the specific gravity of the pigment and on the brushability of the paint. The specific gravity of lead cyanamide paint ready for use is 1.8-2.0.

It is possible to replace part of the lead cyanamide by an inert pigment such as ferric oxide or barytes — up to a proportion of 40% of the total pigment — without detriment to the anti-rust action and durability of the paint film. Moreover, lead cyanamide can be used in top coats as well as under coats. When used in this way, the anti-corrosive action of the combined coats is still further improved.

Lead cyanamide mixed with micaceous iron ore produces an excellent paint in which the leafing tendency of the micaceous iron ore is considerably increased by the lead pigment. Differential settling of the pigments does not occur as in other primers, owing to the slight difference in specific gravity of the pigments.

In the case of paints containing lead cyanamide mixed with inert pigments the lead cyanamide acts as a catalyst for the drying of the oil, so that such mixtures, like lead cyanamide itself, may be classed as pigments of high drying quality.

As far as toxicity is concerned, it is the same for lead cyanamide as for other lead paints.

(Exclusive American agent for Duisburger Kupferhütte is Berkshire Chemicals Inc., 420 Lexington Ave., New York 17, N. Y. . . . or for more information check CP 2882 on handy form, pages 2 and 3.)

Higher than average mol wt ester type plasticizer has wide compatibility . . .

makes possible control of hardness or modulus without sacrificing processing characteristics

Uses: Primary plasticizer.

Features: Solvent action, compatibility, light stability, heat, water, and soap resistance are excellent.

Description: Staflex KA is a monomeric ester type plasticizer of higher than average molecular weight. Its use is stated to make possible control of hardness or modulus through changes in plasticizer composition without sacrifice of desirable processing or performance characteristics.

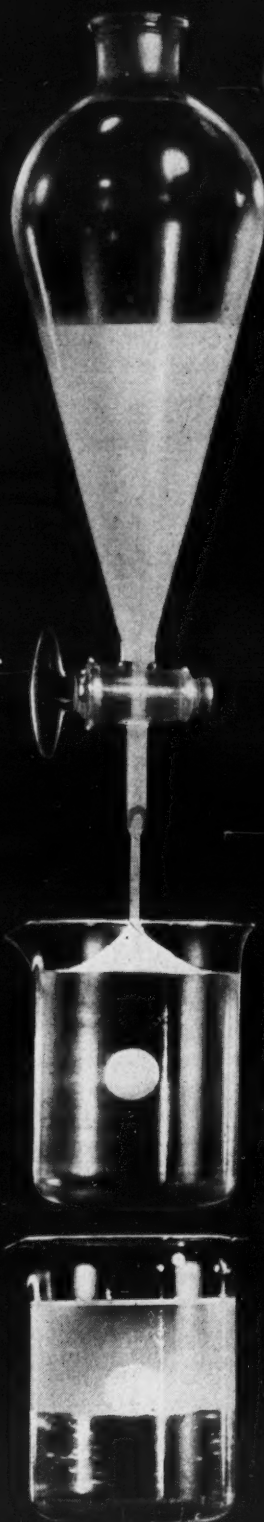
It is a low color liquid easily dispensed from drums or tanks without heating. In pre-blenders, it mixes well with the resin without abnormal pasting or caking.

To obtain compounds with a hardness of 90 Duro A or higher, Staflex KA should be used without other plasticizers. When a hardness near 85 or lower is wanted, mixtures of about 70% Staflex KA with 30% of a secondary type generally give the best results, although high loadings of the product can be used.

The "hand" or "drape" of the compound can be controlled by choice of the second plasticizer added to Staflex KA. Manufacturer's Staflex DNS or Staflex IXA produce leathery stocks while DOP or dioctyl adipate give a "rubbery" texture to the compound.

Processing of Staflex KA plasticized stocks compares favorably with those using the usual primary plasticizers of lower molecular weight. The compounds have a normal plasticity at processing temperatures, making possible calendering or extrusion without the use of excessively high temperatures.

(Manufactured by Deacy Products Co., Dept. CP, 120 Potter St., Cambridge 42, Mass. . . . or for more information check CP 2883 on handy form, pages 2 & 3.)



Commercially available

Dry-Flo

A UNIQUE STARCH

DRY-FLO powder is a derivative of ungelatinized granule corn starch. Each granule is anchored to a water-repelling film of hydrocarbon radicals.

DRY-FLO powder flows like a liquid through a separatory funnel. It has a soft, silky texture. Its extreme fluidity or mobility permits it to be pumped or sprayed like a liquid or to be easily dispersed to an unusually fine and penetrating dust.

DRY-FLO powder floats. It is not wetted by water. It cannot be gelatinized by heating in water. However, if DRY-FLO is first moistened with alcohol or another water miscible solvent, it can be cooked like ordinary starches. It will give viscous pastes from which films with decided water-repellent properties can be obtained.

DRY-FLO powder is easily suspended in organic solvents, oils, lacquers, etc. It is hydrophobic. It does not clump due to the absorption of moisture — as can be seen by shaking DRY-FLO in a mixture of water and an immiscible solvent, such as naphtha, etc. DRY-FLO is suspended in the solvent. And even though it settles to the surface of the water it continues to be easily resuspended in the solvent, as illustrated.

DRY-FLO is an excellent no-offset powder for the plastic and regular printing industry. Its fine particle size and silky feel make it an ideal dusting powder for industrial use and for enhancing the sales appeal of consumer goods, particularly printed plastics.



National

STARCH PRODUCTS

NATIONAL STARCH PRODUCTS Inc.
270 Madison Avenue, New York 16, N. Y.

WE'D LIKE TO TEST DRY-FLO in our product development laboratories. Please send
☐ Technical Data ☐ Test Sample ☐ Technical Assistance. Please have a
 National representative call on (date) _____

Mr. _____

Company _____

Address _____

City _____

Zone _____ State _____

When inquiring check CP 2884 on handy form, pgs. 2-3

B. F. Goodrich Chemical raw materials

TEST DATA
ON CHEMICAL RESISTANCE
OF GEON RESIN 404

THE table here gives you new and additional information about the properties of Geon Resin 404. Designed for rigid applications, its outstanding chemical resistance makes it ideal for uses where corrosion is a problem—and where rigidity and tensile strength are important. Typical examples of such uses are fume hoods and duct work, tanks for corrosive chemicals, metal tank liners. In addition, Geon 404 is suitable for trays, funnels, buckets, etc.

Geon 404 possesses all the excellent properties of straight polyvinyl chloride, and can be processed without plasticizer addition on standard equipment. In addition to its outstanding chemical resistance, Geon 404 also provides exceptional strength coupled with light weight, and excellent electrical properties. For further information, please write for Bulletin G-6, Dept. GE-3, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. In Canada: Kitchener, Ontario. Cable address: Goodchemco.



CHEMICAL RESISTANCE OF GEON RESIN 404

Original Properties of a Plastic Containing Geon Resin 404 and a Tin Stabilizer

Ultimate Tensile Strength (psi) 8700
Ultimate Elongation (%) 11

PROPERTIES AFTER 30-DAY IMMERSION

IMMERSION MEDIA	ROOM TEMPERATURE		60° C	
	Tensile (psi)	Elong't'n (%)	Tensile (psi)	Elong't'n (%)
Air Oven	—	—	9800	12
INORGANIC ACIDS				
Sulfuric Acid 20%	8500	12	10,000	12
Sulfuric Acid 80%	8900	12	9000	14
Hydrochloric Acid 30%	8600	10	9800	12
Nitric Acid 60%	8500	12	9000	12
Phosphoric Acid 75%	8600	10	10,100	11
ALKALI SOLUTIONS				
Sodium Hydroxide 10%	8600	11	9600	12
Sodium Hydroxide 50%	9100	11	10,000	11
SATURATED SALT SOLUTIONS				
Barium Sulfide	8400	11	9700	12
Calcium Hypochlorite	8400	11	9800	12
Tri Sodium Phosphate	8400	11	9700	12
Sodium Dichromate	8600	11	8600	12
ORGANIC ACIDS				
Acetic Acid 80%	8100	10	9500	12
Acetic Acid Glacial	7800	12	3000	10
Oxalic Acid Sat.	8600	12	9800	12
Citric Acid Sat.	8500	10	9800	11
Stearic Acid 100%	—	—	9500	11
ALCOHOLS				
Ethyl Alcohol	8400	11	6400	12
Butyl Alcohol	8700	11	8600	12
Amyl Alcohol	8600	11	9200	13
Ethylene Glycol	8700	11	9800	11
Glycerin	8700	10	9800	12
HYDROCARBONS				
Lubricating Oil ASTM #1	8400	10	9800	11
Lubricating Oil ASTM #2	8500	12	9800	13
Lubricating Oil ASTM #3	8600	12	9800	12
Gasoline 70 Octane	8400	11	—	—
Gasoline 100 Octane	8800	11	—	—
Hexane	8600	11	—	—
Kerosene	8700	11	—	—
Linseed Oil	8800	11	10,100	12
Castor Oil	8300	12	10,000	12
Cottonseed Oil	8500	12	9700	13
ORGANIC SOLVENTS				
Trichloro Ethylene	8800	11	10,000	11
Carbon Tetrachloride	8800	11	2100	190
Benzene	1700	140	Gelatinous	Gelatinous
Turpentine	8700	10	9200	11
Stoddards Solvent	9000	10	10,200	11
MISCELLANEOUS				
Hydrogen Peroxide 50%	9400	10	10,800	11
Formaldehyde	8300	10	9900	12
Triethanol Amine	5300	180	3000	130
Phenol	—	—	4800	120

MATERIALS

51 questions and answers about penta wood preservative

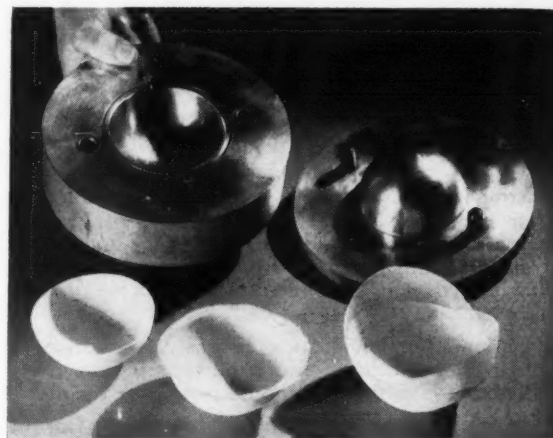
Frequently asked questions are answered in 40-page booklet which discusses many uses and properties of pentachlorophenol. Chemical is commonly used to protect wood against decay and insect attack. Questions cover subjects from the "five methods" of applying penta to the toxic effect of penta on various weeds and micro-organisms. Chemical is available in solutions which function as media to carry penta to wood cells. Pentachlorophenol is said to protect wood against rot, termites, powder post beetles, and other destructive agents.

"Answer Book on Penta Wood Preservation" is issued by Monsanto Chemical Company, Dept. CP, 1700 S. Second St., St. Louis 4, Mo. When inquiring specify CP 2886 on handy form, pages 2 and 3.

Glass-resin laminates mold at pressures from 3-30 psi, stand temps to 900°F . . .

Low-pressure laminates with a high degree of heat stability have been developed. Consisting of glass cloth and 2104 Silicone Resin, they mold at pressures from 3 to 30 psi, and are capable of withstanding continuous exposure to temperatures in the range of 500°F, and intermittent exposure as high as 900°F.

Physical and chemical properties of these materials are comparable to those of conventional high-pressure silicone-glass laminates molded at 1000 psi or higher.



Seamless silicone-glass laminates are made with preformed sections in matched metal molds. For these 3" diameter domes, three plies of laminating stock were heated to 175°F, stretched over a cold metal form and then pressed in magnesium molds at only 3 psi for 15 minutes at 345°F

Their mechanical strength is reported to be far superior to silicone-bonded moldings of chopped glass, mica, asbestos, or other inorganic fillers.

Finished laminates weigh less than aluminum or magnesium and are stronger than either at 500°F. Smooth, non-porous, and easily machined, they are highly resistant to water and resistant to most commonly used chemicals. Laminating stocks may be preformed and used to prepare complex shapes either by bag molding or in light metal molds. Flat sections can be laminated in thicknesses ranging from 0.01-2.00".

Low pressure lamination is a comparatively recent innovation in molding technique which shows considerable promise. With it, large and complex parts can be

GEON RESINS • GOOD-RITE PLASTICIZERS . . . the ideal team to make products easier, better and more saleable.

GEON polyvinyl materials • HYCAR American rubber • GOOD-RITE chemicals and plasticizers • HARMON organic colors

When inquiring check CP 2885 on handy form, pgs. 2-3

MATERIALS

produced with a relatively small equipment cost. Its development stems from the war-time introduction of organic bonding resins which had sufficient initial "flow" to permit the escape of air bubbles and at the same time change rapidly from a liquid to a gel — all without the use of high pressures.

Product 2104 has a low initial viscosity at laminating temperature (345°F), and a gel time that may be controlled by the addition of a catalyst. Press time for



To demonstrate the relative heat-stability of low-pressure glass-reinforced laminates bonded with conventional organic resin and with 2104 Silicone Bonding Resin, sample sections of each were wound with a resistance wire connected through a variable transformer. A thermocouple was attached to the silicone-glass section. In less than 5 minutes at temperatures approaching 800°F, the organic resin was charred and smoking badly, while the silicone remained unchanged. After 15 minutes the organic resin burned away almost entirely. The silicone was unchanged.

low-pressure silicone-glass laminates is 15 minutes for an 1/8" section. Maximum heat stability, however, calls for an afterbake of 100-170 hours at 500°F. In many applications high ambient temperature accomplishes this afterbake during actual use, thus eliminating most of the oven curing.

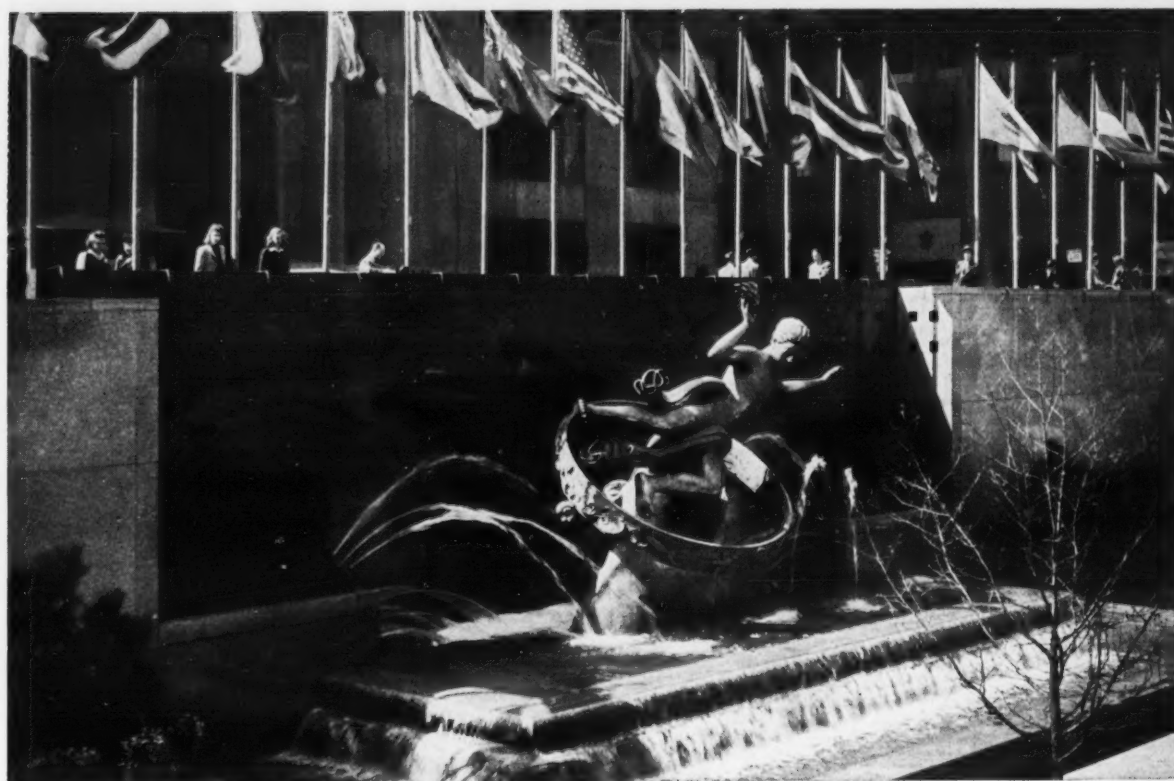
(Full information on laminating stock preparation, laminating, and curing schedules is available from the Dow Corning Corporation, Midland, Mich. . . . or for more information check CP 2887 on handy form, pages 2 and 3.)

Offer tables of chemical kinetics for homogeneous reactions

Government circular presents 731-page compilation of available numerical data on rates and rate constants of homogeneous chemical reactions. Stress is laid on experimentally ascertained facts, and data depending upon interpretations are generally not included. References are usually provided for secondary effects, in particular the great variety of salt effects. Circular contains list of references to literature in the field. Comments are made on particular reactions and on the tables as a whole.

Tables presented in this volume are product of cooperative effort of NBS, Committee on Table of Constants of National Research Council, and Princeton University. Organizations are working together to compile critical tables of data in selected fields where need is apparent.

To obtain "Tables of Chemical Kinetics, Homogeneous Reactions," remit \$4.00 direct to Government Printing Office, Washington 25, D.C.



Statue of Prometheus, Rockefeller Plaza, New York. Photo by Galloway.

does PROMETHEUS ever take a bath?



ANTARA DETERGENTS

Igepals® — nonionic
alkylaryl polyoxyethylene
glycol ethers.

Igepons® — anionic alkyl
amide sulfonates.

That's *his* business — not ours. But any Saturday night he would like our advice, we will recommend Antara detergents, without reservations.

Antara detergents — nonionic and anionic — liquid, gel, paste or powder — are superior cleansing agents for almost anything. They can be formulated into laundry compounds for the home, detergent-sanitizers for dairies, hard-surface cleaners for institutions.

Industry demands them for wool scouring, bottle washing, metal cleaning, and a hundred other jobs where resistance to *hard* water must be coupled with superior detergency, wetting action and emulsifying power.

For paper-pulping — or for Prometheus' bath — "Antara detergents" are the words the Greeks now would have for better cleaning.



ANTARA® CHEMICALS

DIVISION OF

GENERAL DYESTUFF CORPORATION

435 HUDSON STREET • NEW YORK 14, NEW YORK

BRANCHES: Boston • Providence • Philadelphia • Charlotte, N. C. • Chicago • Portland, Ore. • San Francisco

IN CANADA: Chemical Developments of Canada Limited, Montreal

When inquiring check CP 2888 on handy form, pgs. 2-3

Hooker Chemical Guide (ONE OF A SERIES)

USE this handy reference to save time
in selecting high quality chemicals.

HOOKER ACID CHLORIDES

SULFURYL CHLORIDE

Synonym: Sulfuric Oxychloride
Formula: SO_2Cl_2
Appearance: Light yellow liquid



TYPICAL PROPERTIES

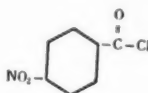
Molecular Weight	135.0
Pour Point	below -54°C
Distillation Range	2° incl. 69.5°C
Specific Gravity, $15.5^\circ/15.5^\circ\text{C}$	1.680
SO_2Cl_2 Content	99% Min.

USES

Chlorinating Agent: In the production of chlorophenol, chlorothymol, pharmaceuticals, dyestuffs; reacts with organic acids to form chlorides and anhydrides.

PARANITROBENZOYL CHLORIDE

Formula: $\text{NO}_2\text{C}_6\text{H}_4\text{CO Cl}$
Appearance: Yellow crystalline lumps or flakes



TYPICAL PROPERTIES

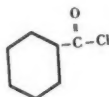
Molecular Weight	185.5
p-Nitrobenzoyl Chloride	97%
Melting Point	70.5°C
Distillation Range at 105 mm	202° to 205°C

USES

End Products: Procaine, dyestuffs

BENZOYL CHLORIDE

Formula: $\text{C}_6\text{H}_5\text{CO Cl}$
Appearance: Clear, colorless to light yellow liquid



TYPICAL PROPERTIES

Molecular Weight	140.5
Freezing Point	-0.9°C
Boiling Point	197.3°C
Specific Gravity, $15.5^\circ/15.5^\circ\text{C}$	1.219
Benzoyl Chloride	99%

USES

End Products: Intermediates, dyes, perfume bases, pharmaceuticals, polymerization catalysts, flour bleaching agents, plasticizers, resins, etc.

Specific Compounds: Benzyl benzoate, benzoyl peroxide, benzophenone and others.

THIONYL CHLORIDE

Synonym: Sulfurous Oxychloride
Formula: SOCl_2

Appearance: Clear, pale yellow to red liquid



TYPICAL PROPERTIES

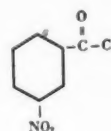
Molecular Weight	119.0
Pour Point	-75°C
Distillation Range	75° to 78°C
Specific Gravity, $15.5^\circ/15.5^\circ\text{C}$	1.640
SOCl_2 Content	97.5% Min.

USES

Chlorinating Agent: To replace various groups with chlorine. Among end products are: isoamyl chloride, synthetic pyrethrum, phenyl propyl chloride and synthetic Vitamin A palmitate, antihistamines.

METANITROBENZOYL CHLORIDE

Formula: $\text{C}_6\text{H}_4\text{NO}_2\text{CO Cl}$
Appearance: Yellow to brown liquid, partially crystallized



TYPICAL PROPERTIES

Molecular Weight	185.5
Last Crystal Point	28° to 31°C
Distillation Range	275° to 278°C

USES

End Products: Dyestuffs for fabrics and color photography; pharmaceuticals.

For detailed information on items listed, drop us a note on your letterhead. Address your request to HOOKER ELECTROCHEMICAL COMPANY, 15 Forty-Seventh St., Niagara Falls, New York.

HOOKER CHEMICALS

NIAGARA FALLS, N. Y. • TACOMA, WASH. • WILMINGTON, CALIF.

From the Salt of the Earth

When inquiring check CP 2889 on handy form, pgs. 2-3

MATERIALS

Clear, glossy, non-crazing films can be cast from H_2O sol'n's of salts of resins . . .

one is characterized by stability at high temps, other by exceptionally glossy films

Uses: Compound C-3 is recommended where stability to elevated temperatures is required. A few experiments have shown C-3 and C-7 to be excellent thickening agents and emulsifiers for synthetic polymer and copolymer dispersions. Both products should be excellent adhesive bases, and, additionally, they can be used as sizes for fabrics. Compound C-7 is recommended for self-polishing floor finishes where good water resistance and high film gloss are required.

Features: As indicated in the preceding, C-3 is characterized by its stability at elevated temperatures and C-7 by its exceptionally glossy films.

Description: Gelva C-3 and C-7 are modified vinyl acetate resins which can be made water soluble or dispersible by treatment with dilute organic or inorganic bases. Clear, glossy, non-crazing films can be cast from water solutions of salts of these resins.

Properties

Form	beads
Color	water white
Transparency	excellent
Light stability	good
Burning rate	slow
Density, gm/cc	ca 1.2
Storage stability	excellent, no change
Physiological effects	non-toxic
Tensile strength, psi	ca 5200
Elongation, %	ca 2.5

Aqueous solutions of these polymers may be coagulated by the addition of acids, polyamino compounds, or multivalent cations such as Al, Fe, and Cr. Insoluble films cast from aqueous solution will have their water resistance increased by treating the surface with dilute acid or solutions of multivalent cations. Heat alone (5 min at 100°C) will improve the water resistance of films cast from aqueous ammonia.

(Manufactured by Shawinigan Products Corp., Dept. CP, 350 Fifth Ave., New York 1, N. Y. . . or for more information check CP 2890 on handy form, pages 2 and 3.)

Announce Improved HAF black . . .

synthetic tread stocks wear longer, up electrical conductivity, and have good processing characteristics

Uses: High abrasion furnace black for compounding natural and synthetic rubber stocks.

Features: Road tests demonstrate longer tread wear, especially when used in synthetic stocks. Imparts high electrical conductivity to rubber stocks. Processing characteristics are good.

Description: Aromex 115 high abrasion furnace black is in pellet form. Specifications are set forth below:

Particle diameter	27 millimicrons
Volatile matter, max	1.25%
Specific gravity	1.77
Ash, max	0.75%
Screen residue (325 mesh, max)	0.10%

(Product of the J. M. Huber Corporation, Dept. CP, 340 Madison Avenue, New York 17, N. Y. . . or for more information check CP 2891 on handy form, pages 2 and 3.)

MATERIALS

Fast-drying finishes recommended usage for resin . . .

Uses: Non-castor styrene-alkyd copolymer resin recommended for use in fast-drying finishes.

Description: Cycopol S 201-1 is soluble in petroleum spirits. Characteristics and film properties are comparable to those of formerly announced, Cycopol S 101-1, and usage follows same recommendations.

For increased drying speed in enamels applied by spraying, it is suggested that the pigment dispersion be made with Cycopol S 201-1 and then let down to the desired pigment volume with Cycopol S 101-1 or S 202-5.

The resin is compatible with Melmac resins in the ranges normally used. Addition of these thermosetting resins contributes to the solvent and chemical resistance of baked films.

CYCOPOL S 201-1 SPECIFICATIONS

Solids, $\pm 1\%$	50
Color, Gardner 1933	5-8
Viscosity, Gardner Holdt	Z-2
Pounds per gallon	7.7
Acid number (solid resin)	4-10

(Product of the American Cyanamid Company, Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y. . . or for more information check CP 2892 on handy form, pages 2 and 3.)

Enter production of Raney Ni catalyst

Production of Raney nickel catalyst, widely used in industrial hydrogenation operations, has been started by a Baltimore firm. Product is essentially a spongy form of nickel, produced by leaching aluminum from an alloy of about 50% aluminum, 50% nickel.

The leaching is done by a 25 per cent solution of caustic soda, which reacts with the aluminum to produce sodium aluminate with the evolution of hydrogen. Enough heat is produced to boil the solution, and a steam jacket on the bottom of the leaching tanks keeps the mixture at its boiling point. Then, the sodium aluminate is washed out. Resultant catalyst has a maximum particle size of 140 mesh and a large surface area. When used in hydrogenation, Raney nickel catalyst can be filtered out of the oil and reused as many as 250 times or more.

(Firm making announcement is The Davison Chemical Corp., Dept. CP, Baltimore 3, Md.)

For more information on product at right, specify CP 2893 . . . see information request blank between pages 2-3.

JUNE, 1952

Facts you may want to know about Mallinckrodt

1500 fine
chemicals

Synthetic
organic
products

Inorganic
products

Precision
processing

Since its founding in 1867, Mallinckrodt has concentrated its attention on the quantity production of fine *inorganic* and *organic* chemicals in standard and custom grades. It now supplies some 1500 products, for industrial, photographic, analytical and medicinal uses.

Mallinckrodt is one of the nation's leading producers of synthetic theophylline and phenobarbital, and is a major manufacturer of ether for anesthesia, cyclopropane, natural and synthetic alkaloids, and organic iodine compounds such as Urokon.[®] Mallinckrodt also manufactures an extensive line of metallic soaps, such as aluminum, calcium, magnesium and zinc stearates, for industrial purposes.

Typical of its inorganic manufactures are the chemicals required for the production of fluorescent lamp and television tube phosphors, such as silicic acid, calcium phosphate, calcium carbonate, and magnesium oxide. Mallinckrodt's "Standard Luminescent" grade of these and other products has won wide acceptance in the electronic industry.

Mallinckrodt has long been a prime producer of mercury salts, bismuth salts, silver salts and iodides.

Mallinckrodt chemists and production men have demonstrated special talents for producing to unusual chemical and physical specifications, in tonnage quantities.

MALLINCKRODT CHEMICAL WORKS

Mallinckrodt St., St. Louis 7, Mo. • 72 Gold St., New York 9, N. Y.
Chicago • Cincinnati • Cleveland • Los Angeles • Montreal • Philadelphia • San Francisco

ORGANIC INTERMEDIATES •
INORGANIC CHEMICALS •
CHEMICALS FOR ELECTRONIC
USES • METALLIC SOAPS •
ANALYTICAL REAGENTS •
PHOTOGRAPHIC CHEMICALS •

Mallinckrodt[®]

MANUFACTURERS OF FINE
CHEMICALS FOR INDUSTRY •
SINCE 1867 •

FOR FINE
INDUSTRIAL CHEMICALS—
FOR PRECISION
CHEMICAL PROCESSING

THINK OF

Mallinckrodt
FIRST!

**BARRETT, Nation's Major Producer
of Coal-Tar Chemicals, Announces
Commercial Production of**

ISONICOTINIC ACID

Barrett Standard — 99%-plus Purity

For Pharmaceutical and Veterinary Formulations

of Isonicotinic Acid Hydrazide

1, 5, 50 and 100-lb. Containers

**THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET, NEW YORK 6, N. Y.**



Barrett is Basic

Reg. U. S. Pat. Off.

When inquiring check CP 2894 on handy form, pgs. 2-3

MATERIALS

**Make latex emulsion paints
that roller-coat without
blistering, cratering . . .**

defoamer is responsible; use also foreseen in penicillin manufacture, textile processing

Uses: Defoamer for synthetic rubber latex base water emulsion paints.

Features: Makes it possible to apply water base paints by roller-coating without attendant blistered or cratered surfaces.

Defoamer may be dispersed directly in such paints, or premixed with one of the paint constituents. It is completely stable and requires no special care or storage; no adverse effects on paint stability were noted in storage tests over a period of 3 months.

Description: Defoamer ED is a brown viscous material consisting essentially of a mixture of high molecular weight esters (coconut oil fatty acid residues) and incorporated particles, latter must be re-suspended immediately before dispersing the defoamer in paint. Viscosity is 113 centipoises at 25°C, density is 0.902 at 25°C, and pH of a 1.0% aqueous dispersion is 9.7.

Satisfactory paints have been prepared on a plant scale using concentrations as low as 0.1% by volume.

Defoamer ED has been evaluated in other fields of work — it has passed penicillin toxicity tests and may be adopted for use during the aeration step in the manufacture of this antibiotic. Other possible uses being tested are in the manufacture and application of adhesives and in textile processing.

(Product of the El Dorado Oil Works, Dept. CP, 311 California Street, San Francisco 4, Calif. . . . or for more information check CP 2895 on handy form, pages 2 & 3.)

**Polymerization catalyst is
also drier catalyst . . .**

aids greatly in increasing molecular cross linking of heat reactive resins

Uses: Catalyst for promoting cross-linking polymerization at elevated temperatures. Found useful as a drier catalyst in baked finishes which are based on pure epoxy resins or combinations of epoxy resins, urea-formaldehyde, melamine, or alkyd resins.

Features: With baking type soft oil alkyds (such as soya or dehydrated castor oil alkyds), as little as half the amount of this metal can be used to replace the normal amount of cobalt metal in order to produce equal drying performance with improved toughness of film, and with the absence of the usual discoloration at elevated temperatures.

The catalyst aids greatly in increasing the molecular cross linking of heat reactive resins, resulting in increased hardness and toughness of the film. In white baking enamels, color retention is said to be better than cobalt drier, even when baked for 30 minutes at 350°F or 15 minutes at 380°F.

Description: Soligen Rare Earth Naphthenate 4% is the name that has been applied to this catalyst. Samples and technical data are available from the manufacturer on request.

(Product of the Advance Solvents & Chemical Corporation, Dept. CP, 245 Fifth Avenue, New York 16, N. Y. . . . or for more information check CP 2896 on handy form, pages 2 and 3.)

CHEMICAL PROCESSING

MATERIALS

Bases improve gloss and color stability

Uses: Bases for red and blue enamels.

Features: PB 85-S5 imparts high gloss to finished red enamels; PB 66A-S5 gives excellent color stability to the materials.

Description: Pliolite Base 85-S5 consists of 75% by weight of Pliolite S-5 resin and 25% by weight of du Pont's Wachtung Red RT-428-D. It is part of the line of Pliolite Bases available to facilitate the manufacture of bright red enamels.

Pliolite Base 66A-S5 consists of 75% Pliolite S-5 resin and 25% of du Pont's Monastral Blue Lake BL-282-D. As a result of the different pigmentation the base gives excellent color stability by eliminating the tendency toward pigment crystallization and flocculation previously found in coatings prepared with manufacturer's PB 66-S5.

Furthermore, because the Monastral Blue is resistant to acids and alkalis, PB 66A-S5 can be used in chemically resistant coatings with minimum risk of color change.

(Products of Chemical Division, The Goodyear Tire & Rubber Co., Dept. CP, Akron 16, Ohio . . . or for more information check CP 2897 on handy form, pages 2 and 3.)

25% more tire mileage from rubber stocks containing new carbon black . . .

used in HAF black formulations without major change

Uses: Rubber reinforcing oil furnace carbon black especially recommended for tire treads.

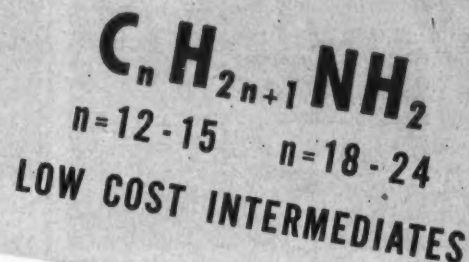
Features: Imparts unusually good tensile strength and high abrasion resistance. Credited with increasing tire mileage 15-25% over conventional HAF blacks. Can be used directly in HAF black formulations without the necessity of making major changes.

Description: Vulcan 6 is the trade name being applied to this rubber reinforcing carbon black.

(Product of Godfrey L. Cabot, Inc., Dept. CP, 77 Franklin Street, Boston 10, Mass. . . . or for more information check CP 2898 on handy form, pages 2 and 3.)

For more information on product at right, specify CP 2899 . . . see information request blank between pages 2-3.

Primene Alkyl Amines



Available Grades

Primene 81-T

12-15 carbon *t*-alkylamine
Sp. Gr. 0.835 at 25°C.
B. P. 5-95% at 225-271°C.
(760 mm.)

Primene JM-T

18-24 carbon *t*-alkylamine
Sp. Gr. 0.853 at 25°C.
B. P. 5-70% at 133-191°C.
(15 mm.)

Desirable Properties

Free-flowing liquid
(not waxy)
Soluble in hydrocarbons
(non-gelling)
Good color stability

Free-flowing liquid
(not waxy)
Soluble in hydrocarbons
(non-gelling)
Good color stability

Reactions

- 1 An unusual reaction is the formation of stable, distillable aldimines with aldehydes. The monomeric azomethines from formaldehyde ($\text{RN}=\text{CH}_2$) are exceptionally stable.
- 2 Although there is some degree of steric hindrance, the Primene products undergo most of the usual reactions of primary aliphatic amines.
- 3 Reactions such as alkylation and cyanoethylation may be controlled easily to give mono-substitution products.
- 4 Salt formation occurs readily.

Suggested Uses

The oil solubility and color stability of the Primene amines make them particularly attractive in oil additive formulations.

Other suggested uses include the manufacture of surface active agents, bactericides, fungicides, corrosion inhibitors, anti-oxidants, textile chemicals and pharmaceutical products.

Also Available

Primene 81-R and Primene JM-R—Refined grades of Primene 81-T and Primene JM-T

Primac JMA-T—Acetate salt of Primene JM-T

t-octylamine—Boiling Point 137-142°C. (760 mm.)

CHEMICALS

FOR INDUSTRY

**ROHM & HAAS
COMPANY**

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

Add another dyestuff to line of mix-at-use colors . . .

Garnet G is latest addition to line of Spectrolenes; fast to both washing and light

Uses: Textile dyestuff — produces shades of bordeaux, garnet, and red violet when coupled with various naphthols.

Features: Good fastness to both washing and light.

Description: Garnet G is the latest addition to this maker's line of Spectrolene dyestuffs — now bringing the total number to eight. It is a stabilized diazo compound and embodies a new method for mixing dyestuffs. The Spectrolenes and naphthols are put together at the textile finishing plants, thus giving a wide potential range of colors. Textile finishing plants have also found Spectrolene dyestuffs advantageous, because colors are made fresh and thereby avoid deterioration and loss of brilliance and color on standing.

Other Spectrolene colors are Red KB, Red RC, Scarlet 2G, Orange HD, Blue B, Blue BB, and Violet B.

(Product of The Hilton-Davis Chemical Co., Dept. CP, 2235 Langdon Farm Road, Cincinnati 13, Ohio . . . or for more information check CP 2900 on handy form, pages 2 and 3.)

Three types of calcium drier for paints and varnishes

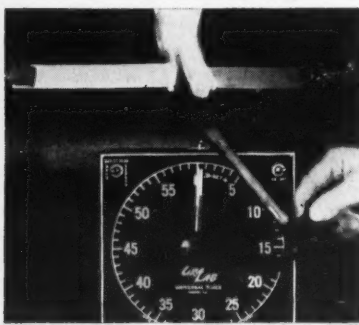
Four-page bulletin provides technical information about three calcium agents for service as auxiliary driers for paints and varnishes. Three types are naphthenate, tallate, and octoate. Folder recommends use of calcium in vehicles showing poor tolerances, in fume-proof finishes, in sanitary coatings, in maleic treated oils, and in penta alkyls.

One section discusses how the calcium can help cut top drier usage while still maintaining optimum drying characteristics.

"Nuodex Calciums" is issued by Nuodex Products Co., Inc., Dept. CP, Elizabeth F, N. J. When inquiring specify CP 2901 on handy form, pages 2 and 3.

Plastic laminates made fire-retardant using latest resins . . .

particularly useful as structural material for electrical components where afterglow can't be tolerated



One of the new flame-retardant laminated plastics (left) and a standard laminate (right) after 15 seconds exposure to the flame of a Bunsen burner

Flame-retardant laminated plastics are expected to find wide application as structural materials. First widespread application is in the chassis of television sets where sizable sheets of metal-clad laminate are used in printed circuitry. Electrical components such as circuit breakers, where afterglow cannot be tolerated, is a usage.

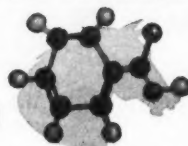


Emulsifier L puts more "kill" in pesticides

Monsanto Emulsifier L, developed especially for use with insecticides and herbicides, is a well-balanced liquid blend of surface-active agents. Because of its versatility, it is highly efficient with such insecticidal and herbicidal chemicals as Chlordan, DDT, 2,4-D Esters, 2,4,5-T Esters, Aldrin, Dieldrin, Lindane, Parathion and Tetraethyl Pyrophosphate. For information on Emulsifier L and its many applications, contact the nearest Monsanto Sales Office or mail the coupon.

TWO CHEMICAL "WORK HORSES"

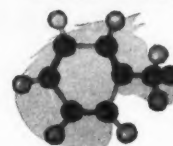
BENZOIC ACID



These Monsanto Intermediates serve industry in such varied ways that they can be called chemical "work horses." Both are made to Monsanto's high quality standards. Both are available for immediate delivery.

Benzoic Acid, Technical—Used in the manufacture of dyestuffs and aromatic and medicinal esters. It is a dispersant in pigment-vehicle grinds. It controls viscosity, permitting reduced acid number, in alkyd resin manufacture.

BENZYL CHLORIDE



Benzyl Chloride—Employed in synthesis of pharmaceuticals, dyestuffs, flavor and perfume bases, plasticizers, quaternary ammonium compounds and rubber accelerators.

Samples are available to qualified chemists who wish to test or experiment with these chemicals. For information and a copy of a new technical bulletin on benzyl chloride, contact the nearest Monsanto Sales Office or mail the coupon.

Maleic anhydride speeds alkyd processing

The addition of from 1/4% to 2% of Monsanto Maleic Anhydride to phthalic-type alkyls reduces processing time as much as one third. In addition, it improves color, hardness and gloss.

Phthalic Anhydride	Maleic Anhydride	Alkyd Processing Time at 500° F, Minutes	Acid Value	Color	Air Dry to Touch Minutes 0.02% Cobalt
100%	None	54	9.0	8.0	60
99 1/2 %	1/4 %	46	10.0	7.8	60
99 %	1 %	42	11.0	7.0	60
98 %	2 %	35	12.0	6.7	60

The following table gives you important data concerning the use of maleic anhydride in alkyls. For further information, mail the coupon or contact the nearest Monsanto Sales Office.

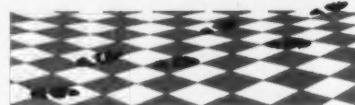
FOR YOUR INFORMATION

Every month Monsanto publishes these pages of pertinent information which may be helpful to you. This issue discusses:

Intermediates
Emulsifier
Plasticizers
Alkyd Ingredient
Silica Aerogel

Coplasticizer
Sodium Tripoly Phosphate
Tetra Sodium Pyrophosphate
Synergistic Action
Defoaming Agent
Rust Control

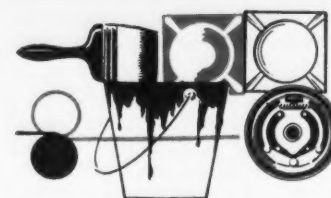
Plasticizers that make floor tile grease resistant



Monsanto Santicizers* 8, 140 and 160 and tricresyl phosphate are efficient, economical, available plasticizers to put sales-making qualities into your floor tile.

These plasticizers are compatible with resins used in the floor tile industry such as asphalt-coumarone-indene and vinyl types. They impart grease resistance and improved processing characteristics.

For information on the use of Monsanto Santicizers 8, 140 and 160 and tricresyl phosphate in the manufacture of floor tile, mail the coupon or contact the nearest Monsanto Sales Office.



Santocel used in wide range of applications

Whatever your problems—whether of processing, finishing or some characteristics of your final product—it will pay you to get well acquainted with Santocel,* Monsanto's silica aerogel.

This phenomenal material is extremely porous, incredibly light, chemically inert. Its versatility is almost unbelievable. Already it has found applications ranging from a flattening agent for lacquers through a thickening agent for lubricants to a mold lubricant for rubber. For further information on Santocel, mail the coupon or contact the nearest Monsanto Sales Office.

Monsanto reports on corrosion-control test in tankers

Several months ago a test was initiated to determine the effectiveness of Monsanto Santolene* C in controlling corrosion in tankers. This is a report of the results.

How test was made: Strips in two cargo compartments in a tanker were sandblasted clean. Petroleum products carried in these compartments were treated with Santolene C at the rate of 12#/1000 bbls. Two other compartments were cleaned for comparisons. Untreated petroleum products were carried in them. One treated and one untreated test compartment always made the return trip containing salt water ballast.

Here are results: After 8 months, the compartments were inspected. Sandblasted strips in tanks carrying Santolene C had slight, soft scale that could be removed by wiping. Areas not sandblasted had a dull, oily appearance. There was apparently no new scale on these areas and the scale

present was clinging tightly to the sides. (This was scale that had been left on the metal when the test started.)

A hard rust-red scale had formed on the sandblasted areas of the compartments without Santolene C. Large sheets of old scale were falling from the sides.

During the period of the test, 153,000 pounds of scale was removed from all compartments of the ship. Scale removed from the two tanks in which Santolene C treated products were carried was 50% to 60% less than that removed from the untreated compartments of the ship.

If you have a corrosion problem in carriers or in static storage of light petroleum products, consider Santolene C. For literature and technical information, mail the coupon or get in touch with the nearest Monsanto Sales Office.

Fast delivery on low-cost extender-type PLASTICIZER

Now available in unlimited quantities, Monsanto HB-40 is a low-cost extender-type plasticizer that's finding wide use in producing vinyl extrusions, vinyl pastes, vinyl slush moldings, vinyl calendering . . . It is also of special interest as a low-cost plasticizer in polystyrene casting resins, polystyrene adhesives, molding polyvinyl carbazole, strip coatings for metals, floor-tile compositions, asphalt-base paints.

LCL price is 17¢ a pound—less in carloads . . . Samples furnished if desired.

Two important PHOSPHATES

Monsanto Sodium Tripoly Phosphate (STP) and Monsanto Tetra Sodium Pyrophosphate (TSPP) are two prominent members of the polyphosphate family that have wide cleaning applications across the front of American industry. They find uses as detergent aids for synthetic detergents, in dishwashing compounds, in bottle-washing operations, in dairy and metal cleaning, de-inking of paper, soap builder.

STP sodium tripoly phosphate

Monsanto STP is one of the newest of the sodium phosphates. It combines outstanding calcium sequestering power with excellent detergency, physical and chemical stability and high water solubility.

The sequestering action and water softening power of STP (as well as of TSPP) is of particular significance because of its value in the control of hard water. In cleaning operations where soap is used, sequestration eliminates the formation of insoluble scum and curds usually formed when soap is used in hard water.

Monsanto STP has a relatively high solubility in water—in this respect it has an advantage over TSPP, since at room temperature it is about 4 times as soluble. For instance, STP is soluble to the extent of 15 parts of water at 15° C., and 29 parts per 100 of water at 90° C.

High detergency is another outstanding property of Monsanto STP—when combined with other alkalis, synthetic detergents or soap, it makes an outstanding contribution to the detergency of the mixture. This characteristic is particularly valuable in industrial detergent compositions for dairy equipment and metal cleaning, dishwashing.

TSPP tetra sodium pyrophosphate

Monsanto TSPP is important to industrial cleaning because it combines unique properties as a water softener, emulsifier, dispersing and deflocculating agent, detergent and a builder for soaps and synthetic detergents. Additionally, it is characterized by unexcelled purity, chemical and physical stability.

The synergistic action of TSPP (as well as STP) is one of the most valuable properties of these two Monsanto polyphosphates when either is used in combination with synthetic detergents. Synergism is defined

as a "cooperative action of two or more separate agencies (TSPP and Santomerse® No. 1, for instance) which results in a combined effect that exceeds the average of the two effects taken independently."

Example:

If Santomerse No. 1, with a detergency of 100%, is combined with TSPP with a detergency of 75%, the resultant detergency of the mixture would supposedly be the average of the two, or 87½%. Actually it is much more—NEARLY 110%.



Looking for a defoaming agent?

There's a new Monsanto high-molecular-weight alcohol ester having excellent action as a defoaming agent. It is called Sterox® 110 (formerly AE-1).

Among present applications of Sterox 110 (formerly AE-1) are—Defoamer in producing alcohol from molasses . . . defoamer in producing glycerol from fats . . . foam control in the manufacture of yeast and other fermentations . . . elimination of foam in certain bottle-washing operations . . . meeting foam problem in polystyrene latex water dispersions . . . lubricant for vinyls that are extruded or calendered . . . coplasticizer for rubber hydrochloride and chlorinated rubber.

These uses may suggest others to you that may have value in your own processing. If you'd like samples for experimentation, write Monsanto. Also ask for Technical Bulletin No. P-140. Use the convenient coupon.

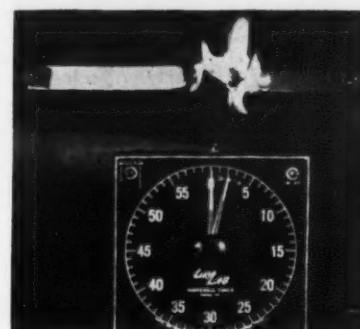
MONSANTO CHEMICAL COMPANY, 1700 South Second Street, St. Louis 4, Missouri. District Sales Offices: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle, Twin Cities. In Canada, Monsanto Canada Limited, Montreal.

*Reg. U. S. Pat. Off.

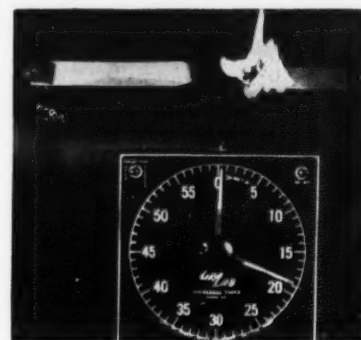


SERVING INDUSTRY . . . WHICH SERVES MANKIND

MATERIALS



Two seconds after the burner is withdrawn, the flame-retardant material has already begun to extinguish itself. The standard laminate which is shown at the right continues to burn freely



Less than 19 seconds after the Bunsen burner was removed, the flame-retardant plastic laminate has stopped burning, and exhibits no afterglow

A new resin being used in Synthane plastic formulations is responsible for the flame-retardant safety feature. Test procedure worked out with the Underwriters Laboratories, Inc., call for suspension of a strip of the laminate in a Bunsen burner flame for 15 seconds, and then withdrawing the flame for 15 seconds. On fifth repetition of cycle, the flame must extinguish itself in 60 sec. *Laminates made with new Synthane plastics extinguish themselves in less than 20 sec.*

Resin formulations available in standard grades and forms of Synthane plastics.

(Product of the Synthane Corporation, Dept. CP, Oaks, Pa. . . or for more information check CP 2903 on handy form, pages 2 and 3.)

Physical properties and uses of organic chlorine compounds

Eleven organic chlorine compounds are described in 28-page booklet. Descriptive material covers uses, physical properties, specifications, as well as shipping data of compounds.

One section of booklet is devoted to specifications of organic chlorine compounds as they are shipped in commercial quantities. This section contains complete description of laboratory test methods that are recommended for determining whether commercial material meets certain specifications. These control tests consist of standard ASTM methods as well as procedures which have been developed recently.

Graphic curves are plotted for vapor pressure, specific gravity, boiling point, etc., of compounds. Compounds are stable liquids, and most of them are non-flammable. They may be used as solvents, extractants, intermediates, and fumigants.

Some of these organic chlorine compounds can be utilized to synthesize pharmaceuticals, insecticides, synthetic rubbers, and resins. Booklet F-4769A is issued by Carbide and Carbon Chemical Company, A Division of Union Carbide and Carbon Corporation, Dept. CP, 30 E. 42nd St., New York 17, N. Y. When inquiring specify CP 2904 on handy form, pages 2 and 3.

SEND INFORMATION:

- ☐ Emulsifier L ☐ Santicizers.
☐ Maleic Anhydride. ☐ Santocel.

SEND LITERATURE:

- ☐ Benzyl Chloride Bulletin. ☐ HB-40
Coplacticizer. ☐ Sodium Tripoly Phosphate.
☐ Tetra Sodium Pyrophosphate. ☐ Sterox
110 Defoaming Agent. ☐ Santolene C.

SEND SAMPLE:

- ☐ Benzyl Chloride. ☐ Benzoic Acid.
☐ Sterox 110 Defoaming Agent. ☐ HB-40.

MONSANTO CHEMICAL COMPANY

1700 South Second Street, St. Louis 4, Missouri

Please send, without cost or obligation, information, sample or literature as indicated at the left.

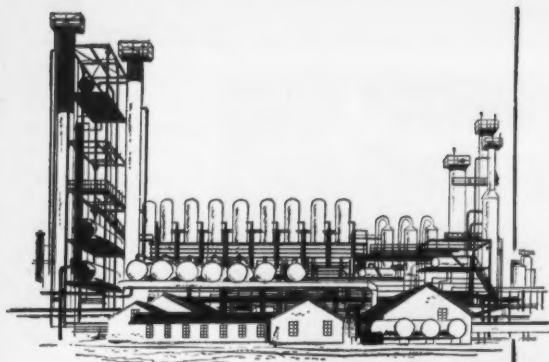
Name.....Title.....

Company.....

Street.....

City.....Zone.....State.....

When inquiring check CP 2902 on handy form, pgs. 2-3



PETROCHEMICALS BY PIPELINE . . .

MATHIESON *DIETHYLENE GLYCOL

Mathieson

Ethylene Glycol

***DIETHYLENE GLYCOL**

Triethylene Glycol

Ethylene Oxide

Ethylene Dichloride

Dichloroethylether

A highly versatile intermediate, solvent, plasticizer and coupling-agent, Mathieson Diethylene Glycol is applicable in the manufacture of printing inks, surface-coating resins, composition cork and plastics. It is also used as a tobacco humectant.

Produced at Mathieson's modern petrochemical plant at Doe Run, Kentucky—from raw materials derived from natural gas originating in the Gulf area—Mathieson Diethylene Glycol meets all requirements for manufacturing and chemical processing.

At Doe Run, sites are available for manufacturers needing a location close to a dependable source of diethylene glycol and concomitant ethylene products.

Mathieson
CHEMICALS

MATHIESON CHEMICAL CORPORATION • BALTIMORE 3, MARYLAND

When inquiring check CP 2905 on handy form, pgs. 2-3

MATERIALS

Quartet of castor oil derivatives for use in synthetic waxes, lubricants, greases

Uses: Paricin 1 has application in the manufacture of multi-purpose greases, all as a plasticizer for nitro-cellulose, allyl starch, and synthetic waxes.

Solricin 2 finds application in the manufacture of rust preventive compounds.

Calcium ricinoleate has application as a vinyl stabilizer, waterproofing agent, and in lubricants.

Magnesium ricinoleate finds application in cosmetics, lubricants, and as a waterproofing agent.

Description: Compounds are derivatives of castor oil. Paricin 1, methyl hydroxy-stearate, is a white waxy solid in the form of short, flat rods. Average molecular weight is 312. Other properties:

Acid value	4
Sap value	177
Iodine value	5
Melting point, °C	48

Compound is made in commercial volume but is not yet a regular product.

Solricin—ammonium ricinoleate (85% solution)—is a clear viscous liquid as manufactured or when warmed, but sets to a soft paste upon aging or cooling. Some physical and chemical properties:

Density lb/gal, 25°C	8.04
Specific gravity, 25°C/25°C	0.965
Volatile matter, %	18
pH	7.8
NH ₃ , %	4.8
Viscosity, G.H., 25°C	U

Calcium ricinoleate has a molecular weight of 630. It is a fine white powder which is insoluble in water. Properties:

Volatile matter, %	1.50
Free ricinoleic acid, %	1.25
Melting point, °C	98
Bulk density, gm/cc	0.39
Specific gravity, 25°C/25°C	1.04
Calcium ricinoleate, %	98.5

It is insoluble in water and most organic solvents at normal temperatures. Product is presently being manufactured on a semi-commercial scale.

Magnesium ricinoleate is a coarse, white granular substance. Molecular weight is 614. Some properties:

Volatile matter, %	0.75
Magnesium ricinoleate, %	95
Melting point, °C	98
Bulk density, gm/cc	0.43
Specific gravity, 25°C/25°C	1.03

Its solubility is the same as the calcium compound, and similarly, it is being manufactured on a semi-commercial scale.

(Available from The Baker Castor Oil Co., Dept. CP, 120 Broadway, New York 5, N. Y. . . or for more information check CP 2906 on handy form, pages 2-3.)

Postulates mechanism of rusting in low alloy steels

Theory of mechanism of atmospheric rusting of low alloy steels is presented in 38-page booklet. Exposure tests were started in 1941 in industrial and marine atmospheres. Booklet presents analyses of selected rust samples in addition to weather data and weight losses. Theory specifies that corrosion rate depends on quality and quantity of water reaching steel surface. Relatively insoluble corrosion

CHEMICAL PROCESSING

MATERIALS

products decrease the amount of soluble constituents in water, and thereby decrease corrosion. These corrosion products do not wash away, which results in decrease in porosity of rust coating and quantity of water reaching steel.

Tables, graphs, and photographs serve to explain exposure tests on the 71 low alloy structural steels. According to report, copper and nickel in steel render sulfate corrosion products more insoluble by forming complex basic sulfates.

On alloy steels the sulfates are less soluble so that corrosion is slower, but less sulfate is washed away and more accumulates in the rust. Report states that percentage of sulfates in rust increases as weight loss decreases.

"A Theory of the Mechanism of Rusting of Low Alloy Steels in the Atmosphere" is issued by The International Nickel Company, Inc., Dept. CP, 67 Wall St., New York 5, N. Y. When inquiring specify CP 2907 on handy form, pages 2 and 3.

Resists vegetable oils better than previous synthetic rubbers . . .

type W family of Neoprene developed especially for white conveyor belting

Although Neoprene synthetic rubber possesses a host of advantages when used for conveyor belting, it was discovered in one application that vegetable shortening oils had a serious effect on the surface of such belt.

Engineers of Baldwin Belting Inc. conferred with DuPont rubber chemists and came up with a Neoprene which is more resistant to vegetable oils than anything previously available. The new Neoprene — designated as Type W.R.T. — is a crystallization-resistant polymer of the type W family. It not only has all the desirable properties of conventional Neoprene, but also exhibits better crystallization-resistance and displays a lower compression set over a wider temperature range than natural rubber.

It contains no compounds capable of decomposition that yield either free sulfur or a vulcanization accelerator.

Specific gravity is 1.25. Solubility is shown in aromatic and chlorinated hydrocarbons as well as naphthenic petroleum solvents. Partially soluble in esters and ketones, and insoluble in aliphatic hydrocarbons, alcohol, and water. It is reported to be washable, oil-proof, water-proof, tasteless, odorless, non-toxic, and acid, alkali, and heat resistant.

(Neoprene W.R.T. is being used for making all Baldwin White Supertex Belting. Baldwin Belting Inc., Dept. CP, 76 Munray Street, New York 7, N. Y. . . . or for more information check CP 2908 on handy form, pages 2 and 3.)

Standard coating products are keyed to focus interest

Six-page brochure offers guide to standard coatings, finishes and adhesives for industrial applications. Seven types of coating include corrosion resistant, plastic stripable, ignition insulator, and abrasive safety coating for treading surfaces. Each item is keyed to focus buyer interest and thus eliminate search through various products.

Bul 50M51 is issued by The Merchants Chemical Company, Dept. CP, 55 Day St., So., Norwalk, Conn. When inquiring specify CP 2909 on handy form, pages 2 and 3.

... a new source of supply

ETHANOLAMINES
now available from
JEFFERSON

MONOETHANOLAMINE

For use as . . . a gas scrubbing agent for recovery of hydrogen sulfide and carbon dioxide . . . a chemical intermediate in the manufacture of various surface active agents, rubber chemicals, and other materials . . . an agent in the manufacture of antibiotics.

DIETHANOLAMINE

For use as . . . an intermediate in the manufacture of surface active agents used in textile specialties, herbicides, petroleum demulsifiers, etc. . . . a gas scrubber in refinery operations . . . a rubber chemicals intermediate.

TRIETHANOLAMINE

For use as . . . an intermediate in manufacture of surface active agents used in textile specialties, waxes and polishes, herbicides, petroleum demulsifiers, toilet goods, cement additives, cutting oils, etc. . . . a rubber chemicals intermediate.

Jefferson
CHEMICAL COMPANY, INC.

260 MADISON AVENUE, NEW YORK 16, N. Y.

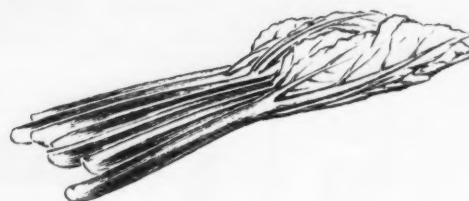
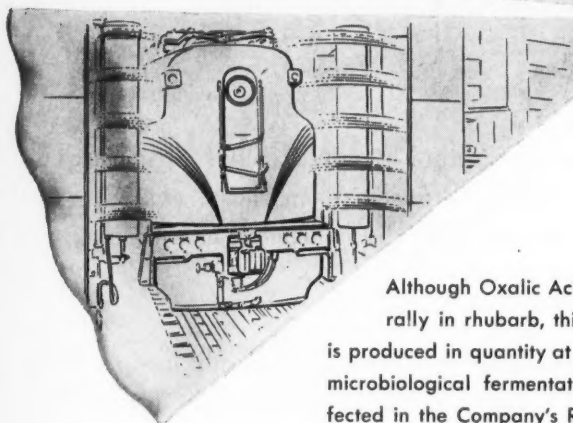
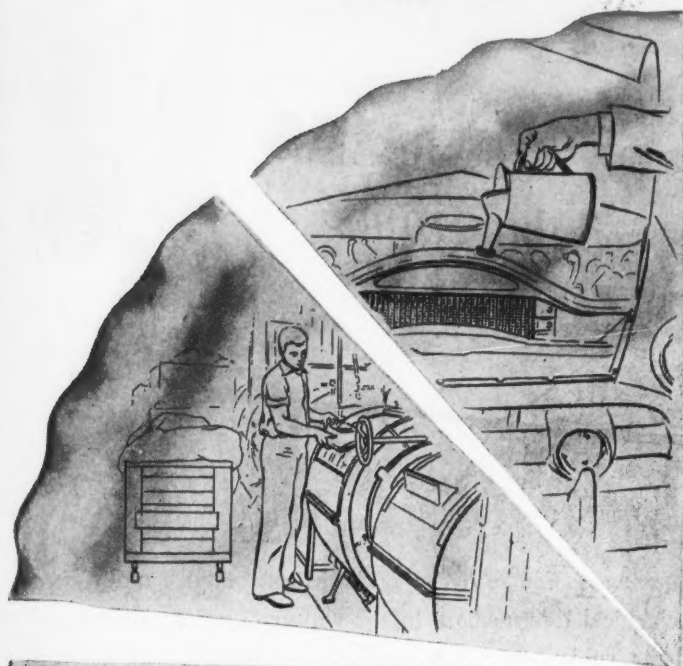
Essential Chemicals From Hydrocarbon Sources: Ethylene Oxide • Ethylene Glycol • Ethylene Dichloride
Diethylene Glycol • Monoethanolamine • Diethanolamine • Triethanolamine



Shipped in tank cars or drums. For additional information about ethanolamines and technical data on these and other Jefferson chemicals, write to Department D, Ask for our new Product Bulletin.

When inquiring check CP 2910 on handy form, pgs. 2-3

Rhubarb's Fine for Pies...



but it won't
fill your needs for

Oxalic Acid

Although Oxalic Acid is found naturally in rhubarb, this basic chemical is produced in quantity at Pfizer through a microbiological fermentation process perfected in the Company's Research Laboratories. The Pfizer process yields Oxalic Acid of high purity.

Because of its ability to solubilize iron oxide, Oxalic Acid is highly effective as an ingredient of metal cleaning compounds, in radiator flushes and as a rust remover in

textile and leather processing. Its bleaching properties make it useful as a laundry sour and in the treatment of straw, cork and leather.

For more detailed information on the varied uses of this important organic acid, write for Technical Bulletin #34.

CHAS. PFIZER & CO., INC.

630 Flushing Ave., Brooklyn 6, N. Y.

Branch Offices:

Chicago, Ill.; San Francisco, Calif.; Vernon, Calif.



PFIZER

Manufacturing Chemists For Over 100 Years

When inquiring check CP 2911 on handy form, pgs. 2-3

MATERIALS

Resilient and pliable over entire temp range from -75 to +500°F...

a heat resistant cloth consisting of a glass fabric coated with white silicone rubber

Uses: Diaphragms, gaskets, seals, fire curtains, electrical insulation, gas ducts and hose, light weight conveyor belts, and expansion joints for large boiler installations.

Features: Resistance to mild alkalis, mild non-oxidizing acids, most salts, mineral oils, oxygenated solvents, air and water. Does not affect most other materials with which it comes into contact.

Description: Cohrlastic 3016 consists of a glass fabric coated with white silicone rubber. It retains its original properties from -75 to +500°F. Overall thickness is 0.016" and weight per sq yd is 19 oz. Mechanical properties follow:

Bursting strength, Mullen	378 lb/sq in
Breaking strength, cross	200 lb/in
Breaking strength, length	250 lb/in
Moisture vapor transmission, 50%RH	2.7 gm/100 sq in/24 hr
Water absorption, saturation	0.58 gm/100 sq in/24 hr
Air diffusion	1.06 x 10 ⁴ gm/sq cm/sec
N ₂ diffusion	2.69 x 10 ⁴ gm/sq cm/sec
CO ₂ diffusion	11.00 x 10 ⁴ gm/sq cm/sec
H ₂ diffusion	55.00 x 10 ⁴ gm/sq cm/sec
Weight loss, 48 days at 300°F	0.173%

Fabric has excellent dielectric strength and can be used in many electrical applications. It is available in continuous length, 38" wide.

(Manufactured by The Connecticut Hard Rubber Co., Dept. CP, 407 East St., New Haven 9, Conn. . . or for more information check CP 2912 on handy form, pages 2 and 3.)

Chemical and physical properties of sulfonamide plasticizer

Technical bulletin reviews sulfonamide type plasticizer which is reported to be useful in formulating heat-sealing or heat-sensitive adhesives and lacquer coatings. In addition to chemical and physical properties, bulletin includes typical formulations for nitro cellulose heat-sealing coatings, and paper coating lacquers. Discussion also covers polyvinyl acetate adhesives, zein metallic decorative paper coatings, back-coatings for pressure sensitive tapes, and hot melts for paper adhesives.

Although plasticizer is miscible in varying degrees with several resins, bulletin points out that it has limited compatibility with many resins. It is usually used in combination with more active, solvent type plasticizers. "Santizer 3" is issued by Monsanto Chemical Company, Dept. CP, St. Louis 4, Mo. When inquiring specify CP 2913 on handy form, pages 2 and 3.

Gives durable, flexible surface to sponge and foam rubber...

rubber-base coating seen useful on cork, fiberboard, glass fiber, canvas, fabric, and paper

A rubber-base coating — called Grip-Kote — is announced which gives foam or sponge rubber a tough, durable, elastic, and attractive covering. Originally developed specifically for shoe manufacturers to help them overcome the structural weakness of foam when used as an outer sole, the

CHEMICAL PROCESSING

MATERIALS

coating is also being investigated for use on cork, fiberboard, glass fiber, canvas, fabric, and paper.

Laboratory pull-tests indicate the coating becomes actually integrated with the foam or sponge after application. Coating can be produced in any color or combination of colors and in a variety of textures. Application is very simple, requiring no special skill or training on the part of the operator. Thickness, elasticity, and flexibility can be varied to suit the requirements of specific jobs.

Grip-Kote can be applied to whole sheets of foam rubber (either skin or open face side of foam) prior to mass cutting, and also applied to individual articles. Drying-to-touch takes 30 minutes (3 minutes with infra red lamps or drying tunnels).

(Product of Adhesive Products Corporation, Dept. CP, 1660 Boone Avenue, New York 60, N. Y. . . . or for more information check CP 2914 on handy form, pages 2 & 3.)

Dehydrated packaging aided with pelletized form of desiccant . . .

variety of thicknesses and diameters to complement any container or amount of desiccant needed

Uses: Complete line of desiccants for packaging products requiring protection from moisture.

Features: Prevent sticking or caking of products, protect effervescent products from premature action, prevent hydration of hygroscopic materials, and prevent chemical change or catalysis of products by moisture.

Description: New addition to Dri-Pax products (non-toxic, chemically inert silica gel) are pelletized desiccants. Pellets are wrapped in printed, colored plastic, and supplied in different diameters and thicknesses in order to fit any type of container or supply any needed quantity of desiccant. Pellets are also fabricated into discs that fit into bottle caps in such a way that cap and desiccant are integral. This latter form offers a convenient means for dehydrated packaging of bottled products.

(Dri-Pax desiccants are products of The Davison Chemical Corporation, Dept. CP, Baltimore 3, Md. . . . or for more information check CP 2915 on handy form, pages 2 and 3.)

Synthetic wax has wide range of physical properties

Tables of specifications and full description are included in 16-page catalog on physical properties of synthetic waxes. Amide and ester type waxes are included in catalog.

Melting points range from 55 to 143°C, and hardness varies from soft and plastic to hard and brittle. Some waxes are insoluble in water while others will not dissolve in solvents except at their melting points. Synthetics described in catalog are compatible with natural and synthetic waxes and resins.

In addition to plastics and rubber industries, synthetic waxes may be utilized in metal, electrical, plating, and textile industries. Some applications which are listed in catalog are related to coatings, electrical insulants, lubricants, flattening agents, release agents, etc. "Synthetic Waxes" is issued by Glyco Products Co., Inc., Dept. CP, 26 Court St., Brooklyn 2, N. Y. When inquiring specify CP 2916 on handy form, pages 2 and 3.

since 1925...



Nothing takes the place of Glycerine

For over a quarter of a century, Harriet Hubbard Ayer's Hand Cream has been a perennial favorite with American women . . . and Glycerine has been a favorite ingredient with the manufacturer. Its efficacy as a component of beauty preparations is amply proven by the acceptance shown for Glycerine by cosmetic leaders like Harriet Hubbard Ayer today.

FULLY ACCEPTED . . . FULLY AVAILABLE IN ALL GRADES!

Harriet Hubbard Ayer—and a score of other cream and lotion manufacturers—depend on U.S.P. Glycerine to protect feminine hands . . . without leaving a sticky residue on the skin.

Indeed, U.S.P. Glycerine is the common ingredient among hundreds of toiletries and cosmetic preparations that are favorites of the American consumer. A plasticizer in toothpastes and cake-type powders . . . a "bodying" and spreading agent in face creams—Glycerine can be found in almost every item on wash stand or dressing table!

No single substitute can bring all of Glycerine's properties to the production of toilet goods—plus the assurance of physiological safety. That's one reason why formulas developed years ago—as well as scores of new preparations—include this time-tested ingredient. The scope of Glycerine's applications is reviewed in our booklet, "Why Glycerine for Drugs and Cosmetics?" A copy is yours for the asking.

GLYCERINE PRODUCERS' ASSOCIATION

295 Madison Avenue, New York 17, N. Y.

When inquiring check CP 2917 on handy form, pgs. 2-3



latest technical data
on dispersions from
our Research Department

Now you can benefit from the experience of our Research Department in preparing stable dispersions of metallic sodium in various types of inert organic media — by sending for a copy of our new technical bulletin #104, a Sodium Dispersion Formulation Chart designed for easy reference.

The chart contains full information concerning dispersants, stabilizers, particle size and other data for 25 typical formulations used by our research staff. If you are interested in the unlimited field of sodium chemistry suggested by sodium dispersions, this chart is a "must" for you.

For your copy, address National Distillers Chemical Co., P. O. Box 32, Ashtabula, Ohio. Sodium dispersion samples are also available for use in your research work.



National Distillers Chemical Co.
DIVISION OF NATIONAL DISTILLERS PRODUCTS CORPORATION

When inquiring check CP 2918 on handy form, pgs. 2-3

MATERIALS

In commercial production of glassy phosphates . . .

credited with exceptional sequestering properties

Uses: Maker reports it is expected to find many applications in the following fields:

Dyeing	Industrial & household cleaners
Leather tanning & softening	Dish washing
Textile scouring	Dairy cleaning
Boiler water treatment	Bottle washing
Bleaching	Metal cleaning
Oil well drilling	Electro plating
Condenser water treatment	Steam cleaning
Water purification	Concrete mixing
Soap & synthetic detergents	Clay & ceramic formulations

Features: Exceptional sequestering powers are reported for the products.

Description: Full scale production of Hy-Phos Glassy Phosphates by the Mackenzie Process was anticipated by June 1, 1952. Manufacturer is equipped to give technical service in all of the fields cited above.

(Product of the American Dyewood Company, Dept. CP, 285 Madison Avenue, New York 17, N. Y. . . . or for more information check CP 2919 on handy form, pages 2 and 3.)

Prevents concrete dust formation and adds wear to floors

Six-page bulletin describes liquid chemical hardener, which is said to wearproof and dustproof concrete floors. Hardener is applied to surface of new or old concrete and penetrates sub-structural pores. Chemical reaction with lime and calcium carbonate in concrete is responsible for protective coating.

According to the report, a close-grained and granite-hard, vitreous topping is achieved. Voids in concrete, resulting from water evaporation, are filled in to prevent formation of concrete dust and normal disintegration of floors.

Petrifying action of hardener makes floors impermeable to many industrial oils and chemicals. Effectiveness of hardener in protecting floors from industrial chemicals is presented in chart form. This listing includes carbolic, acetic, and boric acids, as well as several alkalis, salts, and oils. To illustrate penetrating action of hardener, cross sections are shown of treated and untreated concrete areas. Photographs show industrial floors which have been coated with hardening material.

Concrete hardener may be applied with brush or spray to vertical surfaces in oil storage tanks and wainscoting. Bul BP-1006 is issued by L. Sonneborn Sons, Inc., Dept. CP, 80 Eighth Ave., New York 11, N. Y. When inquiring specify CP 2920 on handy form, pages 2 and 3.

Compatibility with anionic, cationic, and nonionic mat'ls features softening agent . . .

may be used in acid or alkaline solutions as well as in neutral solution to obtain special effects

Uses: Softener for textile fabrics: cottons, rayons, acetates, wool, and nylon. It is suggested as a leather softener and may be applied in fat liquors. It is also of interest as a paper softener and as a lubricant or plasticizer for paper coatings.

Features: Compatibility with cationic, nonionic, and anionic materials including urea-formaldehyde resins,

MATERIALS

starches, gums, gas fade inhibitors, etc. May be used in acid or alkaline solutions as well as in neutral solution to obtain special effects.

Description: Alromine RU-100 is a white, odorless wax, readily dispersible in warm water, forming opalescent, non-foaming solutions. Specifications follows:

Active ingredient	100%
pH, 1% solution	7-8
Melting point	40°C
Specific gravity	0.95 (50°C)

Amount required in softener use depends on the type of fabric to be finished and the degree of softening desired; 0.08-0.5% Alromine RU-100 based on weight of fabric is recommended. Maximum softening action is obtained when product is applied from acid solution.

It is said not to develop odor on the fabric or turn rancid.

As far as whiteness retention is concerned, it is somewhat better when product is applied from neutral or alkaline solution than from acid. Alromine RU-100 is reported as not affecting appreciably the rewetting or absorbency of fabrics when applied from neutral, acid, or alkaline solution.

(A product of Alrose Chemical Co., Dept. CP, Box 1294, Providence, R. I. . . or for more information check CP 2921 on handy form, pages 2 and 3.)

Producing quantities of soil conditioner . . .

liquid product reported effective for improving workability of poor clay soils for 3 years and longer

Poly-Ack is the name applied to a new, liquid soil-conditioning agent being produced in quantity by Wilson Organic Chemicals, Inc., Sayreville, New Jersey.

It converts hard clay soil into lumpy soil of good tilth. Soil mass begins to be porous and friable (more crumbly) within a few days after application. Round spongy balls varying up to pea size are reported to appear.

Use of Poly-Ack improves workability of soil, gives better drainage, increases aeration, retards moisture loss through evaporation, improves water retention capacity, and prevents slaking and crusting. Long effectiveness is reported — speed-up tests indicates 3 years or better, depending on soil conditions and other natural factors.

Tests show that the conditioner can be applied directly on turf, lawns, and plants without harmful effect. Tested on seeds, it had no ill effect on germination.

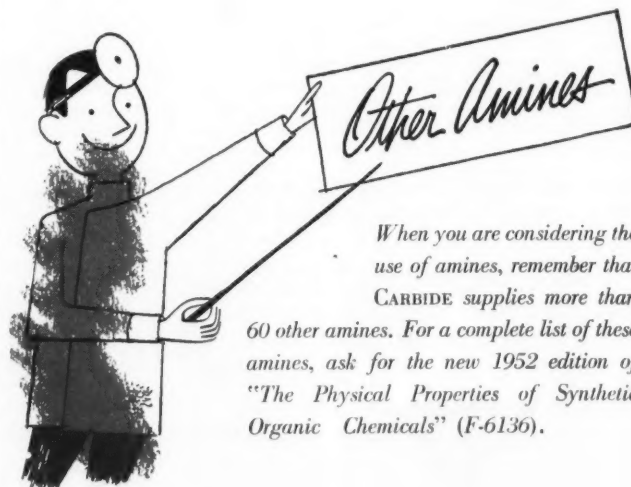
Treated soil was shown to increase crop and plant yields. By conditioning the soil, Poly-Ack increases the effectiveness of plant nutrients.

Weight is 9 lb/gal. For application, 1 gal of agent is diluted with 20 gal of water. Resulting solution is proper amount for treating 1000 sq ft (50 x 20') of soil before seeding or planting. Can be applied by hand or automatic sprinkler. For lawns and turf, use the same amount of solution for 500 sq ft (25 x 20'). For clay tennis courts and baseball diamonds, same amount of solution is applied to 250 sq ft (25 x 10').

(Distribution of Poly-Ack is being handled by Wilson Dye & Chemical Distributors, Inc., Dept. CP, 35 Water Street, New York 4, N. Y. . . or for more information check CP 2922 on handy form, pages 2 and 3.)



Diethanolamine is readily available in commercial quantities from Carbide and Carbon. Call or write any CARBIDE office for prices and information.



Diethanolamine (HOCH₂CH₂)₂NH

Here's how you can use it:

- ▶ to absorb acidic gases. Excellent for scouring H₂S and CO₂ from refinery gases.
- ▶ as a solubilizing agent for 2,4-D.
- ▶ its sulfamate salt is a superior flame-retardant and softener for paper (ask for our technical bulletin, "Alkanolamine Sulfamates As Flame-Retardant Paper Plasticizers," F-7415).
- ▶ as a softening, moistening, or emulsifying agent.
- ▶ in the production of powerful synthetic detergents.

CARBIDE AND CARBON
CHEMICALS COMPANY

A Division of
Union Carbide and Carbon Corporation
90 East 42nd Street NEW YORK 17, N. Y.

Offices in Principal Cities
In Canada:
Carbide and Carbon Chemicals, Limited, Toronto

When inquiring check CP 2923 on handy form, pgs. 2-3

MATERIALS

Two castor-oil free resins produce rapid-drying, resistant finishes . . .

offer solids content of 60% and weight per gallon of approximately 8.2 pound

Uses: Paint vehicles in variety of air drying and baking applications.

Features: Contain no castor oil. Finishes produced possess rapid drying characteristics, excellent color, gloss and chemical resistance.

Description: Cycopols S 202-5 and S 203-5 are styrenated alkyd copolymer resins. The first has the following specifications:

Solids, $\pm 1\%$	60
Solvent	xytol
Color, Gardner 1933	4-8
Viscosity, Gardner-Holdt	Z ₁ -Z ₂
Weight per gallon, lb	8.2
Acid number, solids	2-5

Cycopol S-203-5 can be used as the sole vehicle for Military Specification MIL-E-10687 (ORD), eliminating the need for stocking two different resins for a single formulation. Its use permits reduction proportions of aliphatic solvents. Following characteristics are reported:

Solids, $\pm 1\%$	60
Solvent	xytol
Color, Gardner 1933	5-8
Viscosity, Gardner-Holdt	Z ₂ -Z ₃
Weight per gallon, lb	8.2
Acid number, solids	3-6

(Available from American Cyanamid Co., Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y. . . or for more information check CP 2924 on handy form, pages 2 and 3.)

Values are given for chemical thermodynamic properties

Specific values are listed for certain properties of all inorganic compounds and organic compounds (containing not more than two carbon atoms), where such data are available. Values pertain to heat and energy of formation, entropy, and heat capacity, as well as heats and temperatures of transition, fusion, and vaporization. Separate tables in 1268-page volume give references to original literature from which these values were derived.

Introduction to volume discusses units of energy and fundamental constants. Discussion also covers abbreviations and conventions regarding physical states, standard states, internal consistency, and order of arrangement of chemical substances. This circular resulted from project to collect and maintain tables of thermochemical and chemical thermodynamic data. It contains all loose-leaf tables of earlier series issued by NBS in March 1947 and March 1950. To obtain "Selected Values of Chemical Thermodynamic Properties," remit \$7.25 direct to Government Printing Office, Washington 25, D.C.

One quick squeeze of bottle and demineralized water is produced . . .

pliable polyethylene bottle holds tap water; filter of ion exchange resins fits in its neck

Interesting to the laboratory — especially because of its feature of complete portability — is a device for demineralizing tap water. It consists of a pliable polyethylene bottle with a special filter of ion exchange resins inserted



USES FOR ALKYL AND DIALKYL QUATERNARY AMMONIUM COMPOUNDS

By Dr. M. R. McCorkle

Since their introduction the Arquads (Armour's quaternary ammonium salts) have been used chiefly for their marked germicidal properties. Such applications as mold inhibition, garbage treatment, sanitizing detergents, etc., have been investigated. There are, however, many other fields of application not so well known where the Arquads are being used, or their use is being investigated. Before discussing applications, a brief survey of the Arquads themselves may be helpful.

A quaternary ammonium salt may be thought of as the organic counterpart of an ammonium salt. For example, if ammonium chloride (NH_4Cl) has all its hydrogen atoms replaced by organic groups, it becomes a quaternary ammonium salt. There are two groups of the Arquads; one group is alkyl trimethylammonium chlorides; the other is dialkyl dimethylammonium chlorides. The alkyl quaternaries are water dispersible, while the dialkyls are soluble in most hydrocarbons and a variety of other organic solvents. All of the Arquads are compatible with cationic and non-ionic materials; they are not compatible with anionics.

The Arquads are stable at both high and low pH's, as well as in the presence of most water-soluble salts. They are not precipitated by hard water. The Arquads are surface-active chemicals, and lower surface tension effectively; they may be considered as cationic wetting, foaming and emulsifying agents.

ALGAE AND SLIME CONTROL

Arquad S is an effective algae and slime control agent. It prevents clogging of filter beds, loss of efficiency of heat transfer units and plugging of pump screens.

Slime formation is very common in cooling towers and water conditioning systems that are made of wood. Because this slime causes the wood to deteriorate and rot, parts or often the entire structure must be replaced. Arquad S can help prevent this loss because it is effective against

fungus strains, green and brown algae at concentrations as low as 5-10 ppm.

When added to the spray water of air conditioning units (only two ounces per 1000 gallons of water is needed), Arquad S inhibits the growth of organisms and prevents nozzle clogging. It also removes algae from the glass-packed eliminators.

Arquad S can be used alone or built with phosphates and soda ash to eliminate flat sores and putrefactive anaerobic contamination in canneries. Pea and bean blanchers in particular are a serious source of contamination. Not only does Arquad S sanitize the blanchers but it loosens or removes the scale and organic contamination on metal surfaces, especially on the interior of the drum and spiral.

PRESERVATIVE

Arquad S can be used to preserve proteinacious matter. For example, sheep casings used in the manufacture of surgical sutures and music strings have been pre-

served for five days and longer at 20-22°C in a 0.4% solution of Arquad S containing 1% sodium carbonate.

SANITIZING

Another proven application for Arquad S is as a sterilizer in the frozen citrus fruit concentrate industry. The fruit is first soaked and washed in Ethofat 242/25 (a non-ionic detergent concentrate) then sterilized by immersion in a solution of Arquad S (300 ppm). The fruit is then rinsed with high pressure sprays just prior to cutting. Technical Bulletin E-7 discusses this application in more detail. Send for your copy.

EMULSIFYING AGENTS

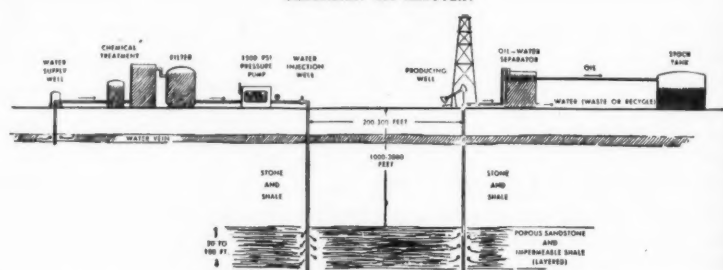
Arquad 2C and Ethomeen S/12 (Bis-hydroxyethyl soya amine) have found considerable application in emulsion compounding. The Arquads have the special property of causing the oil phase of an emulsion to exhaust onto such surfaces as textiles, metals, glass, wood, plastics, etc. They are especially advantageous in producing greater and more uniform pickup and better adherence when applying oily materials, waxes or resins.

Arquad 2C and Arquad 2HT are being used to make insecticide emulsions, phosphoric acid-kerosene metal cleaners, soluble mineral oil concentrates, etc. For more information on these and other emulsions, mail the coupon for your free copy of Technical Bulletin F-2.

SAMPLES

For technical information on these chemicals, send for the complete Arquad booklet at the same time you send for samples.

SECONDARY OIL RECOVERY



Arquad 2C in extremely low concentrations has proved a good protective agent in combating corrosion in secondary oil recovery. Here it has a two-fold purpose, serving as a corrosion inhibitor and a germicide. It eliminates corrosion and plugging by aerobic and anaerobic bacteria.

Sulfur oxidizers and sulfate reducing

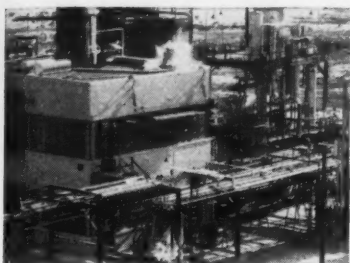
cultures are often found in injection waters in secondary oil recovery. Arquad S at concentrations of 5 ppm inhibits growth of the sulfur oxidizers. Sulfate reducers are a harder culture and this necessitates an initial slug treatment of 35 ppm Arquad S followed by subsequent treatments of 5-10 ppm. Write for Technical Bulletin E-3.



ARMOUR CHEMICAL DIVISION

ARMOUR AND COMPANY • 1355 WEST 31ST STREET • CHICAGO 9, ILLINOIS

FASTER DRYING ALKYDS WITH NEW LOW TEMPERATURE SOLVENT CRYSTALLIZED NEO-FAT 1-50



The Armour Chemical Division has turned the versatility of their new low temperature solvent crystallization to the production of an improved soya type fatty acid. Trade-marked Neo-Fat 1-50, this new chemical has superior drying properties which recommend it for use in the preparation of fast-drying alkyd resins. Tests reveal that Neo-Fat 1-50-prepared alkyds dry to 2B pencil hardness in 24 hours, pigmented films to H hardness in 72 hours.

Neo-Fat 1-50 has minimum iodine value of 150 with an acid value of no less than 197. Titer is 5°C maximum while color is 2 maximum on the Gardner scale. Moisture content will not exceed 0.2 and unsaponifiable matter is less than 0.5.

Samples are available. Send the coupon.

INVESTIGATE NEO-FAT 3R AS AN EXTENDER AND REPLACEMENT FOR DEHYDRATED CASTOR OIL

Several paint manufacturers have found that the extremely low linolenic acid content of the Armour Chemical Division's Neo-Fat 3R makes it an ideal and economical extender for dehydrated castor oil. In some cases Neo-Fat 3R has been used as a direct replacement. Neo-Fat 3R also offers good flexibility in baking finishes even at 50°F. In addition, it has color retention properties which are the nearest approach to those of dehydrated castor.

Neo-Fat 3R is an improved unsaturated fatty acid material produced under exacting quality control by a new low temperature solvent crystallization process. When used to formulate alkyd resins, it gives faster drying, non-yellowing finishes. Faster processing time is another important advantage of this improved chemical.

If you use dehydrated castor in your process, look into the possibilities of Neo-Fat 3R. Send for samples.

COMMERCIALLY PURE MYRISTIC ACID OFFERS MANY PRODUCT DEVELOPMENT POSSIBILITIES

The Armour Chemical Division's patented fractional distillation process has provided many new materials which have led to the development of new and improved products. An outstanding example is Neo-Fat 13—a commercially pure myristic acid.

Myristic acid occurs naturally as the glyceride in various vegetable oils and fats. It is a hard crystalline substance falling between lauric acid and palmitic acid in the saturated fatty acid series. Commercially it is available as Neo-Fat 13 with over 90% pure myristic acid content and only traces of lauric and palmitic acid.

SPECIFICATIONS	MIN.	MAX.
Iodine No.	—	2.0
Acid value.	243	249
Titer, °C.	48	52
Color, Lov. 5¼" ..	—	1.0R-10Y
Unsaponifiable.	—	0.5%
Moisture.	—	0.2%
Odor.	—	Characteristic
Appearance.	—	Characteristic

COMPOSITION	
Myristic Acid.	90.0%
Lauric Acid.	4.0%
Palmitic Acid.	4.0%
Unsaturated Acids.	2.0%

SOLUBILITY AND COMPATIBILITY

At 60°C, Neo-Fat 13 is soluble in acetone, amyl acetate, benzol, butanol, carbon tetrachloride, dipentene, ethanol 90% and 100%, kerosene, methyl cellosolve, turpentine, V. M. & P. naphtha and xylol.

It is compatible at 60°C with alkyd resins, asphalt, beeswax, carnauba wax, linseed oil, paraffin wax, petroleum pale oil and soybean oil.

USES

The availability of Armour's high purity myristic acid provides a new raw material for the synthesis of organic compounds, Alcohols, nitriles, amine esters and metallic soaps may be produced easily and find innumerable applications. Many references have been made in recent literature to the use of various Neo-Fat 13 derivatives in detergents, dyes, textiles, wetting agents, lubrication oils and greases and other industrial applications.



Monoglyceryl ester is a substitute for coco butter in suppositories and as a super fatting agent for soaps, creams, lotions, etc. It may also be used in the preparation of agricultural parasiticides.

Neo-Fat 13 or its metallic soaps have been used in rubber compounding, synthetic resins, paints and in grease compounding.

The sodium or potassium soaps of Neo-Fat 13 have remarkable sudsing and wetting action without the skin irritating tendencies found in most free-lathering soaps. This suggests its suitability for cosmetics, shampoos, shaving creams, etc.

Neo-Fat 13 is available for immediate shipment in flake form in both 50-pound multi-wall bags and in aluminum tank cars. Send today for samples.



Two charts of interest to you —

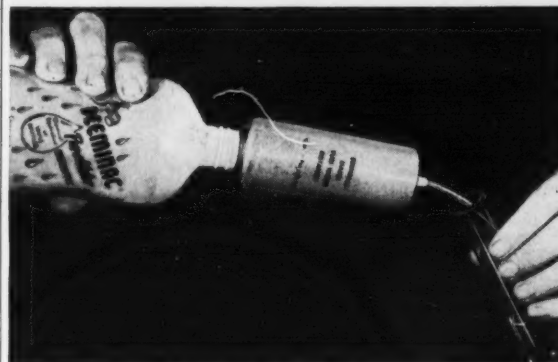
VISCOSITY COMPARISON CHART which converts a known viscosity reading to any of the other 17 major viscosity scales is available.

INDUSTRIAL OILS SPECIFICATION CHART, giving standards and characteristics of Armour's line of industrial oils. For free copies of these charts, send the coupon.

MATERIALS

in the neck like a stopper. The bottle is first filled with water, filter is put in the neck, and then bottle is squeezed to force the water through the filter where the resins de-ionize it as it goes through. The filter changes color when it is ready to replace, and will treat up to 20 gallons of water, depending upon local conditions.

The device (dubbed "Deeminac") will remove metallic ions as well as sulfate, chloride, bicarbonate, and silicate. Treated water is said to be equivalent to that produced by



One quick squeeze for pure water

triple distillation. Deeminac is available in three sizes: six-oz bottle with two-oz filter, eight-oz bottle with three-oz filter, and 16-oz bottle with four-oz filter.

(Product of E. Machlett & Son, Dept. CP, 220 E. 23rd St., New York 10, N. Y. . . or for more information check CP 2926 on handy form, pages 2 and 3.)

Anti-static for gelatine size also acts as warp softener . . .

agent for synthetic fibers thus provides 2-way treatment in 1 operation

Uses: Anti-static agent for acetate, rayon, nylon, and the newer synthetic fibers. Primarily for use with gelatine solutions for sizing these fibers.

Features: In addition to good anti-static properties, the agent also acts as a warp softener — thus one chemical provides 2-way treatment in a single operation.

Description: Lektrostat GY is added in varying amounts from 8-16 lb per 100 gal of gelatine size mix. The agent has effected the following: warp ends do not stick to the drying cans, they split easier at the splitting bars, and show less broken ends. Warps are also woven with less shiners, shedding, and breakage. In general, overall loom efficiency and fabric appearance are greatly increased.

GY, in contrast to maker's former Lektrostat B, has a pH of 7.2. It is compatible with gelatine sizes and will work with anionics under normal conditions. Use shows no effect upon shade of whites, nor has it affected light fastness of colors.

Low viscosity of concentrated solutions of Lektrostat GY render the material highly suitable for spray application.

Application is cited in the blending of raw stock and in garnetting.

(Product of the Dexter Chemical Corporation, Dept. CP, Boulevard PO Box 1, New York 59, N. Y. or for more information check CP 2927 on handy form, pages 2 and 3.)

Mail this coupon

Check the items you want. All in name and address, and mail today.

Send Literature: ☐ Arquad Booklet ☐ Bulletin E-7 ☐ Visc. Comp. Chart
☐ Bulletin E-3 ☐ Bulletin F-2 ☐ Indus. Oils Spec. Chart
 Send Samples: ☐ Arquad S ☐ Arquad 2-C ☐ Neo-Fat 1-50
☐ Neo-Fat 3-R ☐ Neo-Fat 13

Name.....Title.....

Firm.....

Address.....

City.....Zone.....State.....

When inquiring check CP 2925 on handy form, pgs. 2-3

PRODUCTS OF METHYLATION

IT'S *Easy* AND *Economical* TO METHYLATE WITH **ANSUL METHYL CHLORIDE**

You can save money by using **ANSUL METHYL CHLORIDE** in the methylation of amines, phenols, alcohols, hydrocarbons, etc. Based on CH_3 -groups available for reaction, other methylating agents are considerably more expensive than Ansul Methyl Chloride.

Also Ansul Methyl Chloride can be conveniently weighed or metered for positive control of the methylation process. When methyl chloride is used for methylation, no pumps are necessary for transferring it. Methyl chloride, a liquefied gas, provides its own pressure and facilitates handling greatly.

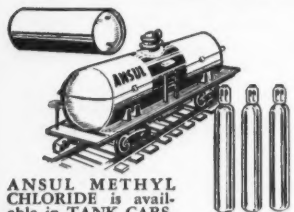
If you have a product to be methylated and you do not have the capacity or the facilities to handle it, ANSUL WILL DO IT FOR YOU. Ample facilities for methylation are immediately available at the Ansul plant in Marinette, Wisconsin.



Write for your copy of Bulletin No. 1004 an Ansul Technical Staff publication.

If you wish specific information regarding methylation processes, products of methylation or products you wish methylated give particulars in your letter. Our Technical Staff will willingly cooperate with you.

For your SULFUR DIOXIDE requirements use ANSUL SULFUR DIOXIDE.



ANSUL METHYL CHLORIDE is available in TANK CARS, MULTI-UNIT CARS, DRUMS and CYLINDERS.

ALSO MANUFACTURERS OF REFRIGERANTS • REFRIGERATION PRODUCTS • DRY CHEMICAL FIRE EXTINGUISHERS



ANSUL
CHEMICAL COMPANY
INDUSTRIAL CHEMICALS DIVISION
MARINETTE • WISCONSIN
60 E. 42nd St., New York
Lincoln-Liberty Bldg.,
Broad & Chestnut St., Philadelphia 7, Pa.

When inquiring check CP 2928 on handy form, pgs. 2-3

MATERIALS

Controllable dry time is resin's big advantage in making coatings . . .

good stability, excellent acid and alkali resistance

Uses: Soluble resin for use as a base in formulation of a wide variety of paints and finishes—concrete, stucco, and traffic paints, acid-resistant enamels, industrial aluminum finishes, plaster wall sealers, etc. Formulations lend themselves to convenient spraying and dip-coating.

Features: Viscosity and dry time are easily regulated by proper choice of solvents, and because finishes dry by evaporation rather than oxidation, drying can be closely controlled.

Paints and enamels show excellent can and dip tank stability—no evidence of settling, caking, or skinning. Resin solutions themselves are compatible with small amounts of a number of paint resins, plasticizers, and extenders.

Films have excellent resistance to acids and alkalis. Adhesion to most surfaces is very good.

Description: 9200 Resin and Paint Crips is a white granular material readily soluble in aromatic-aliphatic solvent combinations. Solutions are clear and practically colorless, and can be prepared by cold-cutting with mixers as well as by ball-milling.

Product is available with colors and pigments already dispersed in the resin. Colors and tints can be made by using this form.

(Product of the Marbon Corporation, Dept. CP, 1926 West Tenth Avenue, Gary, Ind. . . or for more information check CP 2929 on handy form, pages 2 and 3.)

Explains sodium zeolite water softeners

Detailed description covers zeolite water softening and materials used in process. Information includes data for laying out zeolite softening plant, factors governing size of equipment, and discussion of four stages of operation of sodium zeolite softener.

Bulletin also describes hydromatic single control valve. This single control valve is said to be six individual valves in one, replacing the usual "valve nest." Valve operates either manually or automatically. Bul 4520-A is issued by Cochrane Corporation, Dept. CP, Seventeenth St. and Allegheny Ave., Philadelphia 32, Pa. When inquiring specify CP 2930 on handy form, pages 2 and 3.

PICCOLYTE

the *VERSATILE* resin

**The ideal base
for a wide
variety
of products**

because Piccolyte is

- * neutral
- * pale
- * non-yellowing
- * readily soluble
- * compatible
- * resistant to acids and alkalis
- * **Low in Cost**

Write for samples and full details



PENNSYLVANIA
INDUSTRIAL CHEMICAL CORP.
CLAIRTON, PENNSYLVANIA

Plants at Clairton, Pa., West Elizabeth, Pa., and Chester, Pa.
Distributed by Pennsylvania Falk Chemical Co., Pittsburgh 30, Pa.
and Harwick Standard Chemical Co., Akron 5, Ohio

When inquiring check CP 2931 on handy form, pgs. 2-3



"Yes Extra Clean

with ALCONOX

**the fast acting—nationally known
detergent and wetting agent.**

Because of its multiple cleaning power, thorough penetration of dirt and grease, and general top efficiency of action, Alconox gives that EXTRA cleanliness to all washable equipment used for scientific and precision purposes.

In addition, Alconox works 15% to 21% faster—and costs less than 3 cents per gallon of active cleanser.

If your dealer cannot supply you,
write for literature and samples.

Dept. CP6



When inquiring check CP 2932 on handy form, pgs. 2-3

CHEMICAL PROCESSING

MATERIALS

Low viscosity alkyd resin has wide compatibility as grinding liquid . . .

clear, stable compound shows no signs of bodying over prolonged periods of aging

Uses: Universal grinding liquid. It is recommended as a grinding vehicle for concentrated colors used in shading and tinting.

Features: Wide range of compatibility including oils; long, medium, and short oil alkyds; and varnishes. When used in tinting quantities, product is compatible also with styrenated alkyds, styrenated oils, ureas, and melamines.

Description: Alkydol S-1190 is a low viscosity, high solids alkyd resin solution. It is a clear, stable resin, and shows no signs of livering or bodying over prolonged periods of aging. Product has very good pigment wetting properties. Pigments can be ground with ease on roller mills, stone mills, or in ball mills.

CONSTANTS OF RESIN SOLUTION

Solids content, % by weight	59-61
Solvent	mineral spirits
Pounds per gallon, 77°F	7.70-7.80
Specific gravity, 77°F	0.925-0.935
Color, Gardner scale, 1933	12 max
Acid value on solids	16-19
Type of resin	glycerol phthalate, oil and rosin modified
Type of oil	soybean
Oil content, %	40.0

(A product of Alkydol Laboratories, Inc., Dept. CP, 3242 S. 50th Ave., Cicero 50, Ill. . . or for more information check CP 2933 on handy form, pages 2 and 3.)

Pressure and solvent action in extracting vegetable oils

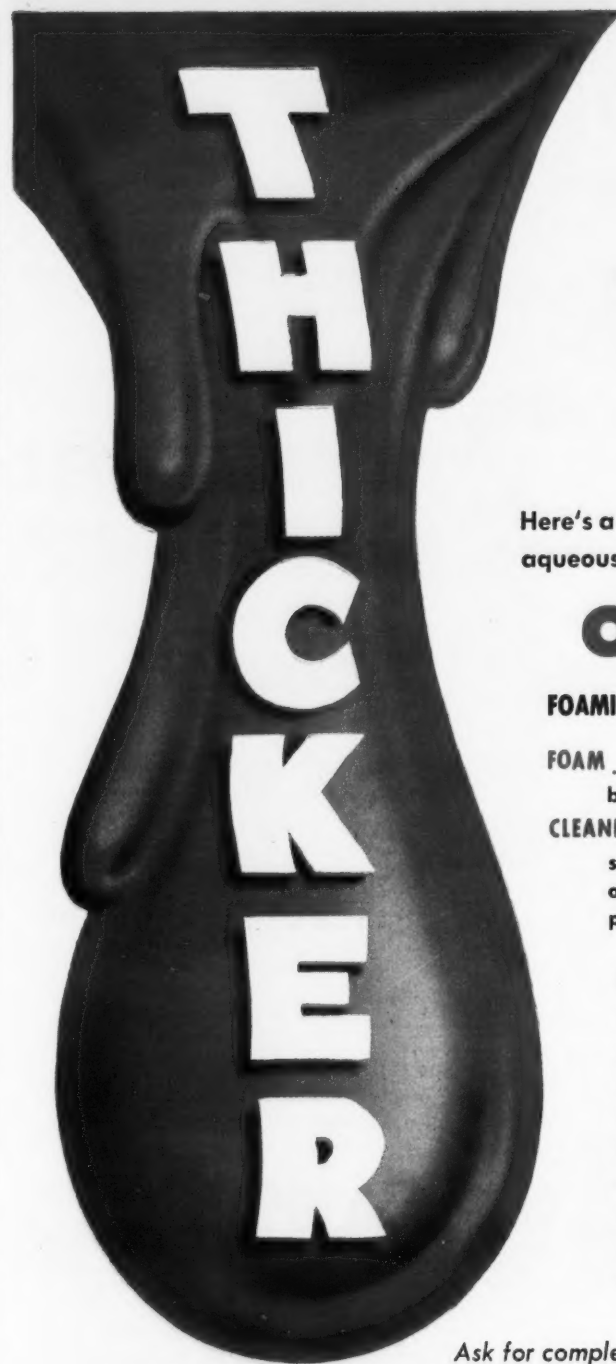
Four-color booklet reviews procedure and machinery for extracting vegetable oils. Processing steps are described in 56-page catalog, which features pressure, solvent, and combined pressure-solvent machinery. Cutaway pictures and flow sheet diagrams present clear explanation of extracting units in operation. Tables of capacity supplement the other information on the three extracting units.

Catalog discusses factors influencing selection of correct machine to meet processing needs. Pressure models are intended for extracting vegetable oil from seeds and nuts which have comparatively high oil content. Solvent extraction machinery is designed for oleaginous materials which have a relatively small oil content. Booklet pictures solvent extraction installations in operation and concludes with a brief survey of auxiliary oil mill equipment.

Booklet "Extracting Vegetable Oils with Expellers, Solvent, Exsolex Process" is issued by the V. D. Anderson Company, Dept. CP, 1935 W. 96th St., Cleveland 2, Ohio. When inquiring specify CP 2934 on handy form, pages 2 and 3.

Claims to be lighter than aluminum and strong as steel

Sixteen-page booklet describes low pressure laminate of reinforced Fiberglas, nylon, or similar material. Product is said to be lighter than aluminum and as strong as steel. Bulletin contains several photographs which show production of flat panels, matched die and vacuum bag molded parts, sandwich construction, and laminated phenolics. "Reinflastics" is issued in letterhead request to Russell Reinforced Plastic Corp., Dept. CP, 45 W. John St., Hicksville, N. Y.



Do you want to maintain or add VISCOSITY in your product?

Here's a non-ionic detergent that exhibits high viscosity in aqueous solutions. It thickens without the use of additives.

ONYXOL 336

FOAMING • WETTING • DISPERSING • EMULSIFYING AGENT

FOAM . . . Onyxol 336 provides copious, highly stable, SMALL bubble foam.

CLEANING ACTION . . . Highly effective for both hard and soft surfaces. Onyxol emulsifies most common oils. It rinses off easily with unusually good drainage action. It is particularly valuable on dishes and glassware.

HERE ARE A FEW EFFECTIVE USES:

- Wettable Sulfur
- Foaming Fire-fighting Solutions
- Ore Flotation Solutions
- Household Liquid Detergents
- Industrial Cleaners
- Shampoos . . . Bubble Bath Solutions . . . Cosmetics
- Buffing and Polishing Compounds
- Pigment Mixing
- Polishes

Ask for complete data . . . and for test samples, if you wish.



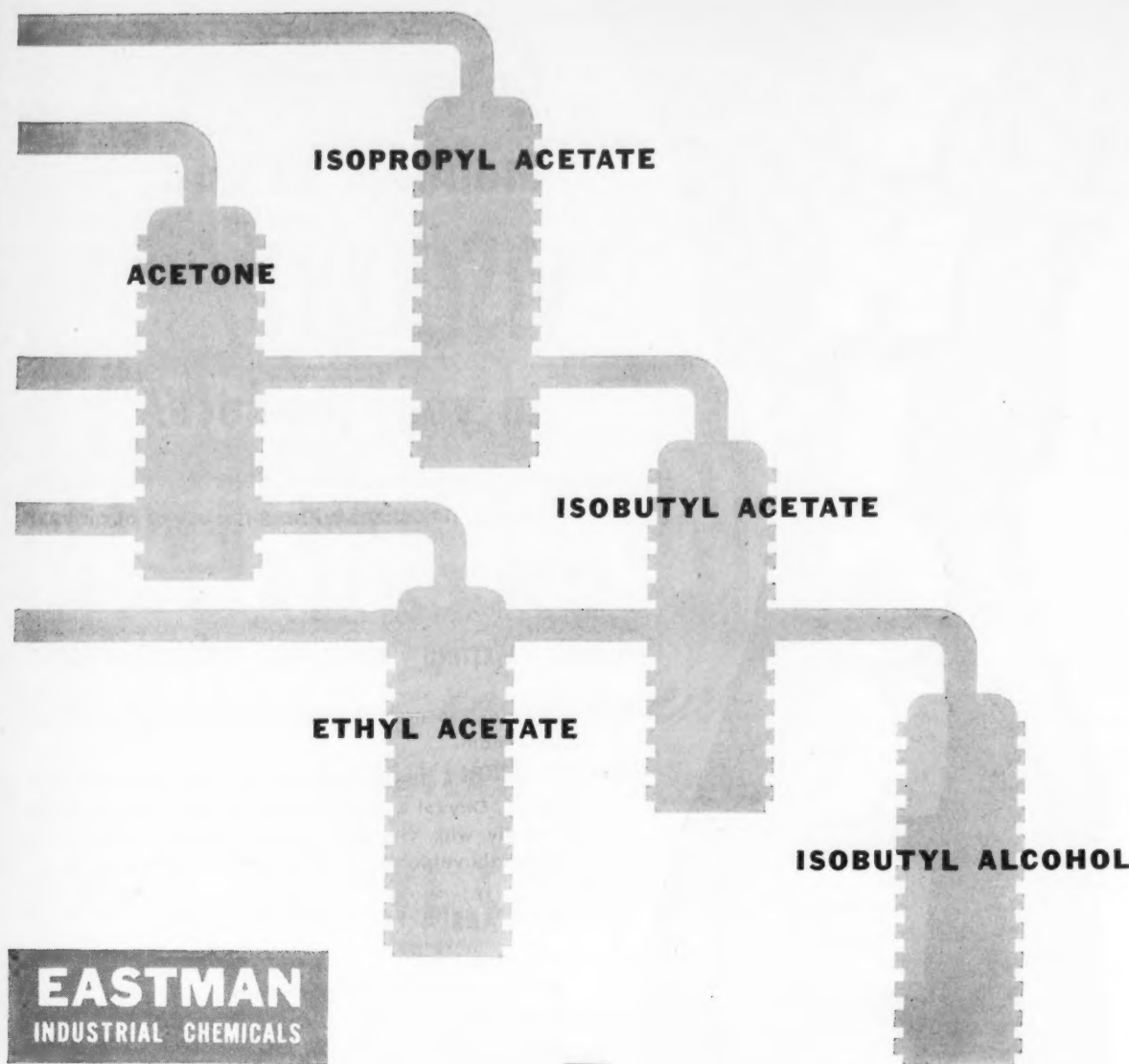
ONYX OIL & CHEMICAL COMPANY INDUSTRIAL DIVISION

184 WARREN ST., JERSEY CITY 2, N. J.

CHICAGO • BOSTON • CHARLOTTE • ATLANTA

In Canada: Onyx Oil & Chemical Co., Ltd., Montreal, Toronto, St. Johns, Que. For Export: Onyx International, Jersey City 2, N. J.
West Coast Representative: E. S. Browning Co., San Francisco, Los Angeles

When inquiring check CP 2935 on handy form, pgs. 2-3



EASTMAN
INDUSTRIAL CHEMICALS

solvents

These products are stored in bulk in Chicago, Illinois and St. Louis, Missouri by DeMert & Dougherty, Incorporated; and in Akron and Cincinnati, Ohio by Anderson-Prichard Oil Corporation.

SALES REPRESENTATIVES: New York—260 Madison Ave.; Framingham, Mass.—7 Hollis St.; Cleveland—Terminal Tower Bldg.; Chicago—360 N. Michigan Ave.; St. Louis—Continental Bldg.; Houston—412 Main St.; **West Coast: Wilson Meyer Co.,** San Francisco—333 Montgomery St.; Los Angeles—4800 District Blvd.; Portland—520 S. W. Sixth Ave.; Seattle—821 Second Ave.

TENNESSEE EASTMAN COMPANY Division of Eastman Kodak Company **KINGSPORT, TENNESSEE**

When inquiring check CP 2936 on handy form, pgs. 2-3

MATERIALS

Formulations of latex base for size press coated paper

Five-page technical data bulletin provides information on use of latex paper coating formulations on size press equipment. Discussion covers preparation of ingredients such as clay, starch, clay slip, and the latex. A typical protein solution is presented to illustrate use of stabilizing medium for latex. In addition to tabular data, descriptive material also deals with storage of coating mixture, pumping and screening equipment, and application at the size press.

"Dow Latex 512-K" is issued by The Dow Chemical Company, Midland, Mich. When inquiring specify 2937 on handy form, pages 2 and 3.

More organic compatibility, more basicity than melamine . . .

N,N-diallylmelamine also has two more centers of reaction than melamine does

Uses: May be polymerized alone or with a variety of other monomers in the presence of azo or peroxide catalysts to form curable resins. Condensation polymerization with formaldehyde also takes place readily.

It is suggested that combinations of these two types of reactions should lead to interesting new molding compounds, surface coatings, ion-exchange resins, and other polymeric products useful for many applications.

Features: Two allyl groups in this product give it more organic compatibility and more basicity than melamine, and in addition, they provide two new centers of reaction.

Description: N,N-Diallylmelamine is a reactive, polyfunctional triazine in the form of white crystals. Molecular weight is 206.25, melting point 142°C, and apparent density (30°C) 1.242 gm/cc. Solubility at 30°C is indicated below:

	gm/100 ml Solvent
Acetone	5.5
Benzene	<0.15
Butyl Cellosolve	16
Dioxane	21
Ethanol	4
Ethyl acetate	3
Heptane	0.03
Methanol	8.5
Water	0.01

(Product of the American Cyanamid Company, Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y. . . or for more information check CP 2938 on handy form, pages 2 and 3.)

Lists effective coatings for chemical agents

Specific sealer, primer, and finish material for many painting problems are discussed in manufacturer's four-page catalog. Air-drying metal and masonry paints are included.

Physical and protective qualities of eight products are briefly described. Technical bulletin numbers are given with each product description if more detailed information is desired.

"Prufcoat" is issued by Prufcoat Laboratories, Inc., Dept. CP, 50 East 42nd Street, New York 17, N. Y. When inquiring specify CP 2939 on handy form, pages 2 and 3.

CHEMICAL PROCESSING

MATERIALS

Transparent vehicle offers resistance to rust, rot . . .

marked compatibility of product permits wide range of uses

Uses: Vehicle for paints; sealer for wood, brick, concrete and stucco walls or floors.

Features: Prevents rust, water-proofs, and is fast drying.

Description: Lectung Oil is a combination of phenolic resin and fast-drying, up-graded vegetable oils. A characteristic is its wide compatibility with other products — permitting a wide range of uses for mixing with pigmented goods, as well as in a clear form.

A floor coated with this transparent product will prevent oil from machinery and vehicles penetrating into the floor. As a wood sealer, it penetrates deeply into the pores of the wood sealing it against moisture and preventing warping.

(Manufactured by The H. B. Davis Co., Dept. CP, Bush and Severn Sts., Baltimore 30, Md. . . . or for more information check CP 2940 on handy form, pages 2 and 3.)

Bead form of synthetic wax easier to handle, use . . .

melting point of 143 degrees C

Uses: Synthetic wax for application as a release agent, lubricant, anti-tack agent, electrical insulant, moisture repellent, and as an additive for raising the melting points of waxes, asphalt, and resins. Applicable in the metals, adhesives, plastics, rubber, paints, electrical, textile, and asphalt fields.

Features: New, improved form of Acrawax C is bead form which offers easier handling and use.

Description: Acrawax C Beads have a melting point of 143°C. Particle size is small and relatively uniform; product pours readily from a drum.

Acrawax C is available also in the following forms: Solid, Powdered, Atomized, and Dispersion S-933 (aqueous).

(Product of Glyco Products Co., Inc., Dept. CP, 26 Court St., Brooklyn 2, N. Y. . . . or for more information check CP 2941 on handy form, pages 2 and 3.)

For more information on product at right, specify CP 2942 . . . see information request blank between pages 2-3.

WITCO STEARATES ARE JOB-DESIGNED

WITCO stearates* have been developed to do specific jobs. For every important purpose, WITCO manufactures a stearate with the special combination of properties you need—improved suspension . . . maximum flattening consistent with good film hardness . . . better bodying . . . controlled flow and sag.

WITCO stearates are especially advantageous because of:

**uniformity
economy
purity
prompt delivery
technical service**

Let WITCO's "know-how" help you achieve a more reliable formulation . . . with *job-designed* WITCO stearates.

* Made in Witco's plants in Brooklyn, N. Y. and Chicago, Ill.

WITCO CHEMICAL COMPANY

295 Madison Ave., N. Y. 17, N. Y.

Los Angeles • Boston • Chicago • Houston
Cleveland • Washington • San Francisco
Akron • London and Manchester, England

Investigate These Witco-made Products.

Aluminum Octoate
Asphalt
Asphalt Specialties
Automobile Undercoatings
Rust Preventives
Sound Deadeners
Vibration Dampeners

Carbon Blacks
Copper Linoleate
Copper Oleate
Copper Naphthenate
Driers

Naphthenic Acid Driers
Lead-Cobalt-Calcium
Manganese-Zinc-Iron
Octoic Acid Driers
Lead-Cobalt-Manganese
Wital (Tall Oil) Driers
Lead-Cobalt-Manganese

Esters
Butyl Stearate
Butyl Oleate
Dibutyl Phthalate
Dibutyl Tartrate

Lead Linoleate
Lead Oleate
Metallic Stearates

Aluminum
Barium
Cadmium
Calcium
Lead
Lithium
Magnesium
Strontium
Zinc

M. R. (Hard Hydrocarbon)

Monty Wax®

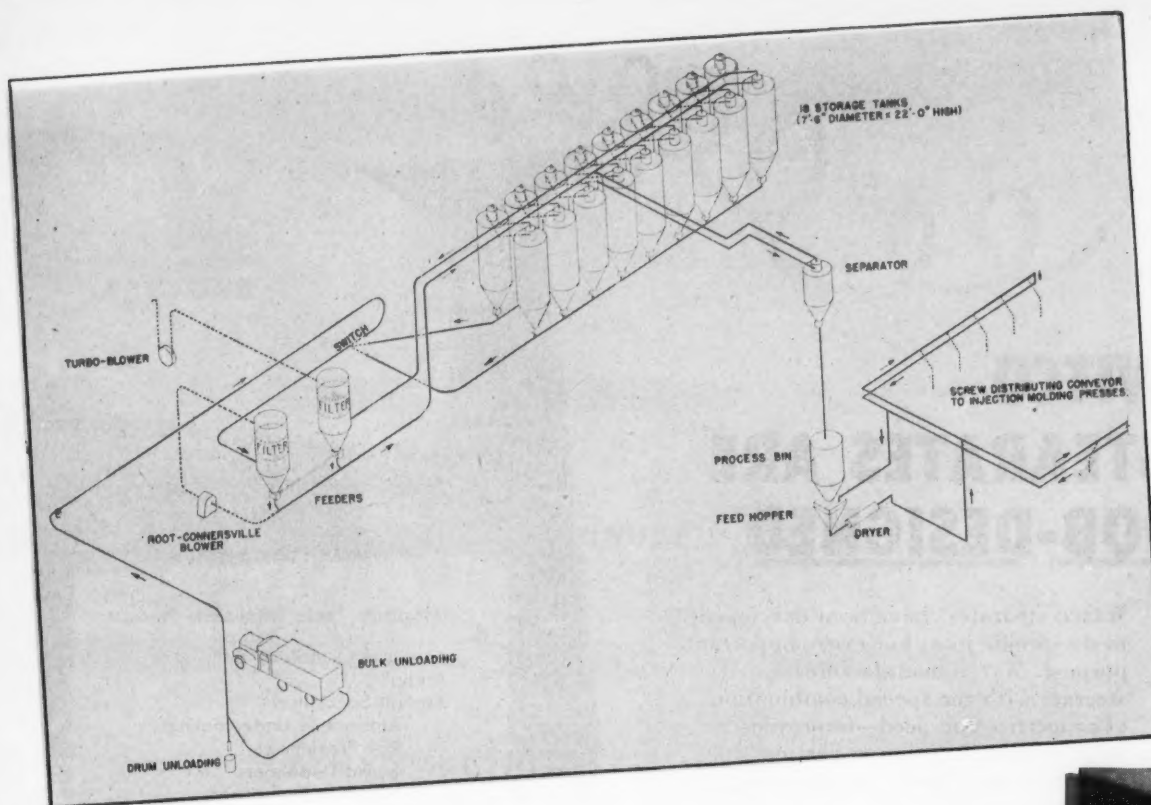
Rubber Compounding Ingredients

Sunolite®

Vinyl Stabilizers

Witcarbs®

Witcotes®



Here is how the storage and handling facilities look at the rear of the Indianapolis plant of Western Electric Company

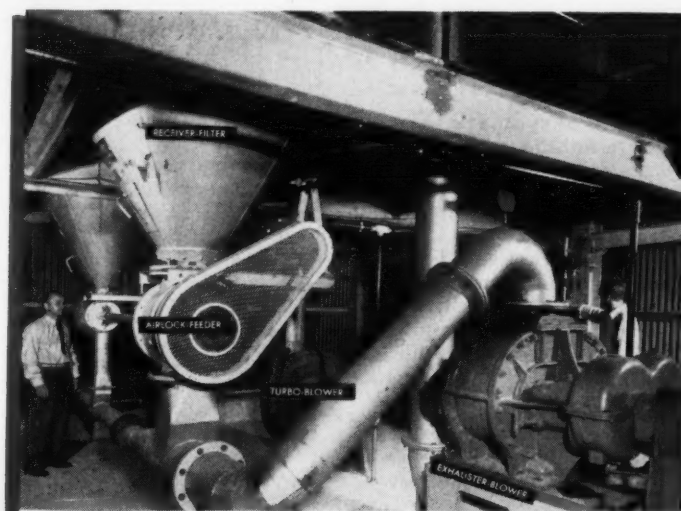
Schematic diagram of handling and storage system for thermoplastic molding material. Note that same conveying system can be used to fill storage tanks or discharge them to process; the change from one to the other is made by manipulating switch in conveyor building

Pneumatic Conveying Proves Economical for Handling Tons of Molding Compounds

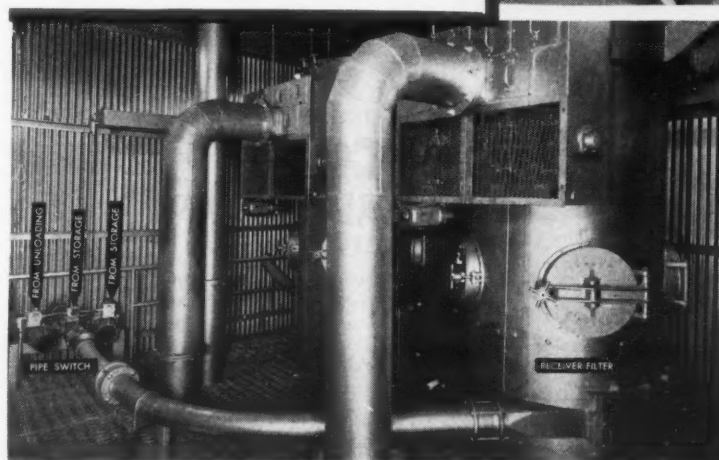
E. C. Lang, engineer at Western Electric's Indianapolis plant, reveals how two conveying and storage systems handle millions of pounds of powder per year

PROBLEM: Western Electric used to receive its telephone-set-molding materials in 250-pound drums, a system which did not cause much trouble as long as the quantities used were not too large. However, as production increased, this method created handling, storage, stock control, and container problems. Today, the Indianapolis plant uses several million pounds of molding materials per year; some of the larger of the seventy molding presses have individual yearly capacities of 600 tons.

Solution: After a study of various handling and storage systems that would fit into a scheme of receiving material by bulk, Western Electric chose two based on pneumatic conveying. One system handles thermosetting phenolic type compounds, and the other thermoplastic cellulose acetate type compounds. The simplified flow diagram represents the system for the thermoplastic materials. The system for handling and storing the thermosetting materials is almost the same; differences



View of ground floor of conveyor house shows component parts of pneumatic conveying system



Upper level of conveyor house is where pipe switch is located (left). Check position of this switch on the flow diagram

will be explained later in this article. Referring to the diagram, material is picked up under partial vacuum at the unloading dock, usually from bulk shipments, and flows through about 400 feet of five-inch suction piping to a combination receiver-filter in the conveyor house. Conveying capacity is about 10,000 pounds per hour. At the filter the material is separated from the

air and dropped into pressure line by motor-driven air-lock feeder. Air is drawn from receiver-filter by a Roots-Connersville exhauster-blower, the discharge of which picks up the material at outlet of feeder and blows it through the line to the centrifugal separator at the top of a selected storage tank.

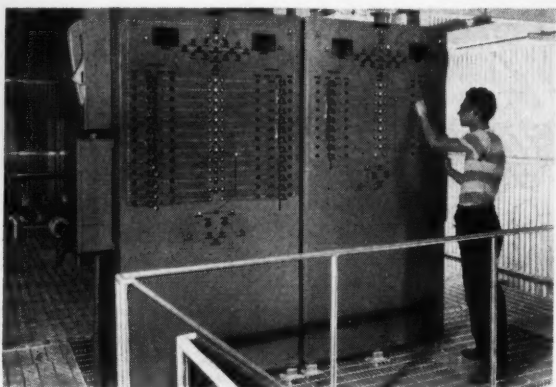
As shown, 18 storage tanks are provided for the thermoplastic materials. Each holds about 28,000 pounds, one bulk truckload. They are arranged in two rows, with conveyor delivery and air return piping manifolds installed above a catwalk between the two rows. Manifolds have flexible pipe switches for easy connection, with toggle fittings, to any of the separators on top of the tanks.

After material is delivered to the selected tank, the conveying air, plus any fines not removed by the separator, is returned under vacuum to a second receiver-filter in the conveyor building. Practically all of the carry-over material is removed at this filter and drops through its motorized air-lock feeder to the pressure piping for re-delivery to the storage tank. The air drawn through the second filter discharges to the outside through a turbo-blower.

As a tank fills with material, it operates a high-level control which shuts down the conveying machinery and lights a signal lamp on the control board in the conveyor house. Other indicators warn when tank level is low and it is time to refill.

At the bottom of each tank a motorized air-lock feeder connects to a conveyor suction manifold pipe (one pipe for each row of tanks). Either of the two pipes can be connected to the filter, and the delivery system can be used for unloading the tanks (note switching point on the diagram).

The material is delivered at a predetermined rate to a



Also on upper level of conveyor house are these control panel boards where operator can see at a glance what is happening in the systems. Board at left is for the 26-tank thermosetting compound system; one at right is for the 18-tank thermoplastic compound system

separator on the roof of the manufacturing building. As a storage tank empties, the material leaving it automatically mixes, thereby minimizing undesirable segregation of coarse and fine particles.

The separator on the manufacturing building delivers material to a process bin in the injection molding room. Automatically controlled flow from this tank feeds into a rotary drum dryer which discharges to an elevator. The elevator delivers material to two enclosed overhead screw conveyors that fill hoppers on two rows of injection molding machines. Excess material recirculates through the dryer.

(Continued on page 56)



Truck synchronizes flow of materials to match production. Here tire treads are carried from treading machine as soon as finished. No delay—no clutter.



"King size" load of tires transported by E-P low lift truck on special skid.



Goodyear finds Elwell-Parkers valuable in their maintenance dept., too. Here a heavy truck tire mold is moved in the machine shop.



High stacking huge tires—Elwell-Parker ease of control pays off on a job like this.

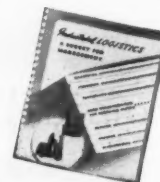


Square feet become cubic feet when this E-P fork truck triple tiers drums four to a pallet.

ELWELL-PARKER Trucks do all these jobs for one user

The versatility of Elwell-Parkers is well illustrated by these typical applications at the Akron plant of Goodyear Tire & Rubber Co. All over this huge factory Elwell-Parkers are constantly on the go in production, storage, distribution and maintenance . . . Without obligation an experienced man will gladly survey your plant—to uncover new cost-cutting applications for industrial trucks. The Elwell-Parker Electric Co., 4016 St. Clair Avenue, Cleveland 3, Ohio.

NEW General Catalog
describes all E-P trucks in detail. Write for your copy NOW.



ELWELL-PARKER
POWER INDUSTRIAL TRUCKS

Established 1893

When inquiring check CP 2943 on handy form, pgs. 2-3

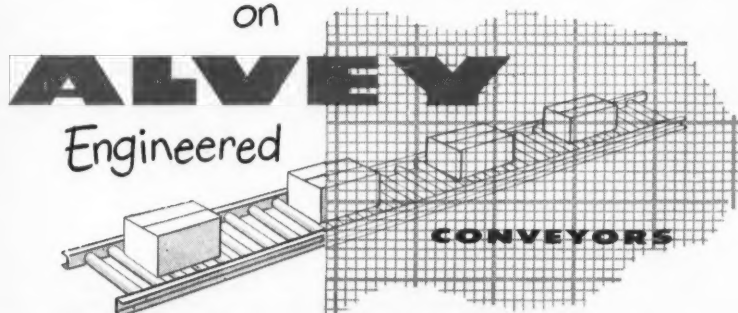
Do you know what you pay for package handling?

high cost **low cost**

Newer type packages may have outmoded your present package handling methods. An over-all study of your equipment and handling methods may reveal considerable savings that can be realized by modernization.

An experienced Alvey Engineer is available to confer with your technical staff in reviewing your present conveyor system and package handling methods. There have been many interesting cost saving devices and ingenious innovations developed recently in package handling equipment that may have application in your plant. Do call in an Alvey materials handling expert. No obligation, of course.

put
your
packages
on



ALVEY CONVEYOR MFG. CO., 9308 Olive Street Road, St. Louis 24, Mo.

When inquiring check CP 2944 on handy form, pgs. 2-3

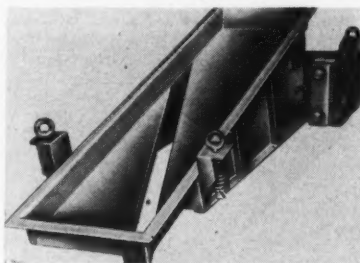
MATERIAL HANDLING

Vibrating feeder passes bulk material through diagonal slot . . .

discharge is 2 to 4 times width of original stream

Uses: Provides continuous curtain of bulk materials such as roofing granules, calcium chloride, and similar material used in industrial processes.

Features: Feeder's vibratory action flows material out along trough and discharges it along edge of slot.



Material flows through diagonal slot in feeder

According to report, curtain of material is 2 to 4 times the width of original material stream.

Description: Spreader Feeder is made up with flat pan trough, which has a diagonal slot. Unit is powered by single electromagnet drive, which may be mounted either above or below flat pan trough.

(Product of Syntrol Company, Dept. CP, 110 Lexington Ave., Homer City, Pa. . . . or for more information check CP 2945 on handy form, pages 2 and 3.)

Accessories for material handling trucks

Two-color catalog features attachments, tools, and accessories designed to increase ease of handling materials with industrial trucks. Specifications, diagrams, action pictures, and explanatory text are included in 24-page catalog. Catalog is issued by Hyster Company, Dept. CP, 2902 N.E. Clackamas St., Portland 8, Ore. When inquiring specify CP 2946 on handy form, pages 2 and 3.

Speeds material handling with ease . . .

overhead cable conveyor is ideally suited for heavy loads

Uses: For handling heavy or lightweight material through overhead monorail cable conveyor system.

Features: Accomplishes dips, turns, "snakes" in all directions. Special split retaining nut makes possible the

Save time! Prevent accidents!

LIFT AND DUMP MECHANICALLY

**BAGS
BARRELS
DRUMS
BOXES**

REDUCE HANDLING COSTS with a CESCO Dumper. It handles up to 100 loads per hour; has a lifting cap. ranging from 100 to 1500 lbs. Both single- and multi-purpose portable models are built in standard dumping heights from 5 to 12 ft. Stationary models up to 16 ft. dumping heights. Push button controlled. Write for catalog.

COLSON EQUIPMENT & SUPPLY CO.
1317 Willow Street • Los Angeles 13, California



When inquiring check CP 2947 on handy form, pgs. 2-3

"HAMMOND" *Conveyor Screws* To Suit Every Application!

HELICOID OR SECTIONAL FLIGHT

If you have a bulk material conveying job, consider the advantages of Screw Conveyor Systems offered by "Hammond".

Finest fabrication to render consistent top performance without costly breakdowns.

- TOTALLY ENCLOSED
- DUST TIGHT
- FLEXIBLE & ACCESSIBLE
- LATERAL, VERTICAL or INCLINED MOVEMENT
- SPEEDS TO SUIT THE JOB
- "U" TROUGHING OR TUBING
- SPACE CONSERVING

Learn of the many possibilities which conveying by "Screws" can bring to your flow of production. Write for Catalog No. 749



When inquiring check CP 2948 on handy form, pgs. 2-3

CHEMICAL PROCESSING

You don't have to pay **BIG MONEY**
to get **BIG TRUCK** advantages

Industry cuts handling costs with

YALE WORKSAVERS

YALE WORKSAVER Electric Trucks are ideal where size and weight make big trucks impractical...over low-load capacity floors; in freight elevators; railroad cars and trucks.

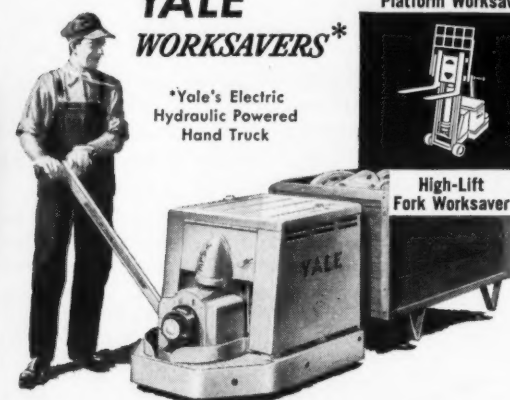
Industry prefers YALE WORKSAVERS because they have everything big trucks have...and for less cost: Power travel—forward and reverse...Power hydraulic lift.

YALE ELECTRIC Worksavers, industry's leading *powered* hand trucks, move loads up to 7,500 lbs....cost little to run...can easily be operated—even by untrained operators.

Heavy-duty platform

YALE WORKSAVERS*

*Yale's Electric
Hydraulic Powered
Hand Truck



YALE & TOWNE

Yale is a registered trade mark of The Yale & Towne Manufacturing Co.

MAIL THIS COUPON TODAY

The Yale & Towne Manufacturing Co., Dept. 126
Roosevelt Blvd. & Haldeman Ave., Phila. 15, Pa.

I want to know how YALE WORKSAVERS can help me.

- ☐ Please have your local Representative call.
☐ Please send free copy of GEMS OF LOW COST MATERIALS HANDLING.

Company _____

Name _____ Title _____

Street _____

City _____ State _____

In Canada write: The Yale & Towne Mfg. Co., St. Catharines, Ont.

YALE GAS AND ELECTRIC TRUCKS • YALE WORKSAVERS • YALE HAND TRUCKS
YALE HAND AND ELECTRIC HOISTS • YALE PUL-LIFTS

When inquiring check CP 2949 on handy form, pgs. 2-3

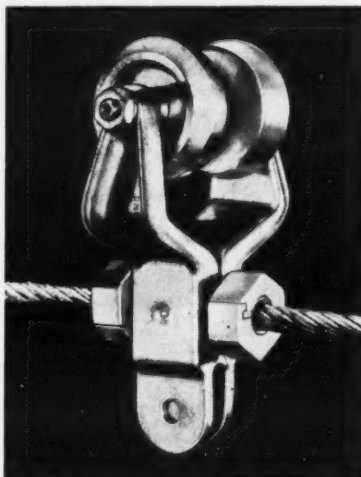
JUNE, 1952

MATERIAL HANDLING

use of light, durable 9/16" steel core cable as a strong connecting medium between trolleys to perform heavy duty. (Pulling power of trolley bracket assembly coupled with conveyor cable reported as much as 10,800 lb.)

Description: Cable conveyor systems include a traction-turn wheel, the steel core cable, split retaining nut, and a split trolley bracket. Cable is of improved plow steel with 6 x 19 strands. Having an independent wire core, cable has an ultimate yield strength of 29,000 lb and weighs 0.56 lb per running foot.

Split retaining nut of forged steel is composed of separable halves which are self-locking. Nut is designed to exert a concentrated 360° compression



Features strength, durability, and flexibility

on the cable as it is turned on the expanding tapered threads of the bracket sleeve. Split trolley bracket, a solid steel forging, fits all standard trolley wheels, and has serrations in sleeve to retain cable when compressed by the split nut.

Traction-turn wheel is adaptable to fit any desired centers and is of welded steel construction with spokes of steel tubing. Each pocket is faced with bronze shoes and hub is lined with bronze bushing. All components of the cable conveyor system are designed to meet standard specifications of conveyors utilizing "458" chain. Such monorail system structures can be utilized without disturbances for installation and operation of the cable systems.

(Development of Daigle-Gaboury, Inc., Dept. CP, 20175 John Rd., Detroit 3, Mich. . . . or for more information check CP 2950 on handy form, pages 2 and 3.)



In MORRIS

Type R Slurry Pumps

SUCTION LIFT HELPS REMOVE OBSTRUCTIONS!

A Morris Type R is capable of operating under suction lift . . . positive head not required! This design feature lets atmospheric pressure do its work — and in many instances it's sufficient to clear the stoppage. Shutdowns and dismantling of pipe lines are greatly reduced.

And when there are cases calling for pump dismantling, the job is relatively simple with Morris Type R. By loosening four bolts, off comes the end cover — and you can take a quick look at the inside. Unscrew the impeller, if necessary. But you don't have to disturb the pipe line at all.

Small wonder Morris Type R is so popular. Flow is maintained so reliably throughout the range from heavy slurries to foaming slurries, that a lot of operating problems are answered. Get the full story of this many-feature pump. Write for Bulletin 181.

MORRIS MACHINE WORKS Baldwinsville, N.Y.

Branch Offices in Principal Cities

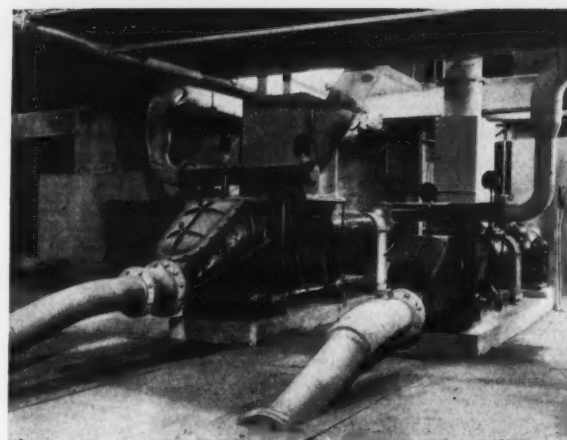
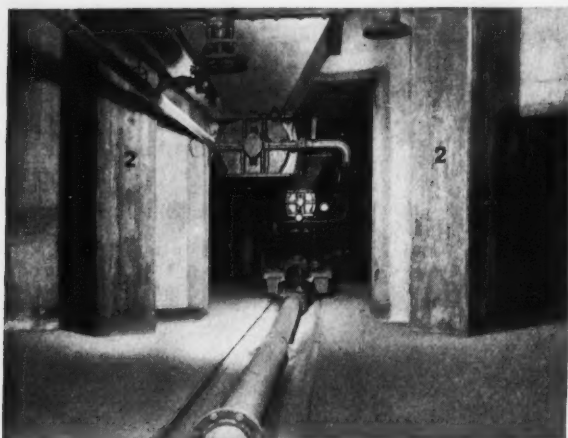
MORRIS

Centrifugal Pumps

When inquiring check CP 2951 on handy form, pgs. 2-3

Fuller-Kinyon 9-inch Type H Pump (left) conveys 80 tons of dry, raw materials an hour, a distance of 592 feet; the 8-inch Type H Pump conveys dry, pulverized material a distance of 502 feet from mills to silos.

Fuller-Kinyon 7-inch Type H Portable Pump conveys 400 bbl. of finished cement a distance of 398 feet from silos to packer bins.



**DRY, FINE MATERIALS
PUMPED LIKE A FLUID**
with the

FULLER-KINYON
CONVEYING SYSTEM

Typical Materials Conveyed By Fuller-Kinyon Systems

Asphalt filler dust
Barytes
Bauxite
Catalysts
Cement (Portland)
Cement raw Materials
Chalk
Clays (dried)
Coal (pulverized)
Coke dust
Dolomite (pulverized)
Feldspar
Flue dust
Fly ash
Fuller's earth
Gypsum (calcined)
Gypsum (raw)
Lime
Limestone (pulverized)
Magnesite
Manganese dioxide
Ores (pulverized)
Phosphate rock (pulverized)
Rock dust
Soda ash
Starch

Large quantities of dry, pulverized materials— aerated to the point of fluidity—can be pumped quickly to storage bins and silos, packer bins, bulk-loading stations and between processing points, *just like any fluid.*

The Fuller-Kinyon Conveying System has the advantage of stable operation under varying loads, and offers a wide range of capacities to choose from. The System's network of air-tight ducts allows materials to flow horizontally, vertically, and around corners . . . an economical arrangement for process plants with limited space in which to install pulverized material-conveying equipment.

If your present bulk handling system does not have these advantages—ask a Fuller engineer to survey your set-up. There's no obligation on your part, with a wealth of new facts to be gained on economical conveying.

Fuller

FULLER COMPANY
Catasauqua, Pa.
120 So. LaSalle St., Chicago 3
420 Chancery Bldg., San Francisco 4

DRY MATERIAL CONVEYING SYSTEMS
AND COOLERS—COMPRESSORS
AND VACUUM PUMPS—FEEDERS
AND ASSOCIATED EQUIPMENT

MATERIAL HANDLING

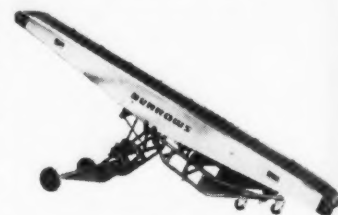
Lightweight, sturdy alloy conveyor with 1/2 hp motor moves bags 80 fpm . . .

by removing detachable carriage, unit can be used for floor-to-floor purposes

Uses: As a bag conveyor, with or without power.

Features: Easily handled, lightweight aluminum alloy portable conveyor moves bags approximately 80 fpm using 1/2hp motor. Conveyor is equipped with a start, stop, and reverse motion switch at either end of the unit.

Description: Available in 13, 15, 17, and 19' lengths, conveyor has distributed load capacity of 300 lb; unit load of 150 lb. Frame is built to sustain distributed load of 600 lb. Belt is of 3-ply impregnated rubber, 12" wide on an 18" bed. Crowned head and foot pulleys assist in aligning belt. Flights are of rubber, spaced 18" apart. Easily operated elevating cranks can be worked from either side of the unit. Under carriage is of welded steel tubing, and may be had with rubber casters or rubber-tired wheels, as desired.



Conveyor belt moves at 80 fpm

(Development of Burrows Equipment Co., Dept. CP, 1316 Sherman Ave., Evanston, Ill. . . or for more information check CP 2953 on handy form, pages 2 & 3.)

Most space with the least tiers featured in "tailor-made" pallet, skid racks . . .

unit arrangement helps appreciably in solving storage, and inventory control problems

Adjustable pallet racks and skid racks, designed to use every inch of existing storage space without new construction or extension, provide increased manufactur-



Adjustable skid and pallet racks make most of storage space

ing space and help solve inventory control problems by allowing unimpaired visibility of stored articles. A simple arrangement can be made to suit any particular floor plan — manufacturing line or storage plant.

(Developed by Market Forge Co., Dept. CP, Everett 49, Mass. . . or for more information check CP 2954 on handy form, pages 2 and 3.)

CHEMICAL PROCESSING

When inquiring check CP 2952 on handy form, pgs. 2-3

MATERIAL HANDLING

High stacking of skids is no problem with telescopic lift . . .

powered hand truck with 2-ton capacity lifts loads 126½"

Uses: For high stacking of skids and skid bins.

Features: Will lift 4000 lb loads as high as 126½". For safety, hydraulic system includes a relief valve to protect equipment from overloads. In addition, brakes are applied and power is "off" when the control handle is either in the full-up or full-down position.

Description: Worksaver model with telescopic high-lift has lowered platform height of 6½". For stability and traction, the unit has an articulated frame that permits continuous floor contact of load and drive wheels, despite ramps and floor variations. The



Lifts skids and skid bins to 126½ inches

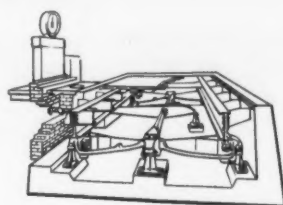
hoist pushbutton is located on the operator's control handle. A hand- or foot-operated lowering control on the front of the battery compartment permits adjustable speed lowering. Twin hydraulic pumps and motors are used for fast lifting.

(Development of Yale & Towne Mfg. Co., Dept. CP, Philadelphia 15, Pa. . . . or for more information check CP 2955 on handy form, pages 2 and 3.)

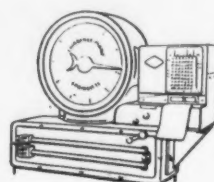
PROCESSING AND ENGINEERING DATA section

on pages 184, 186, 188, & 190.

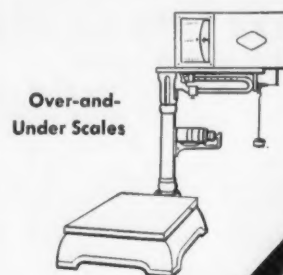
For more information on product at right, specify CP 2956 . . . see information request blank between pages 2-3.



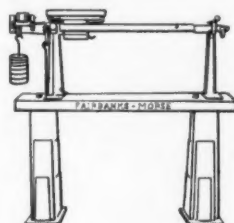
Truck Scales



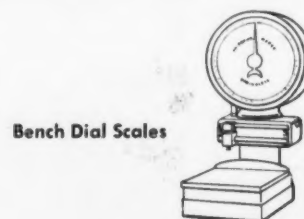
Printomatic Dial Scales



Over-and-Under Scales



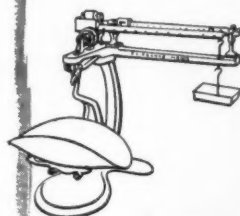
Type Registering Beam Scales



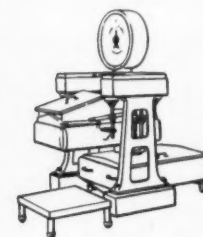
Bench Dial Scales



Portable Dial Scales



Counting Scales



Weigh Can Scales

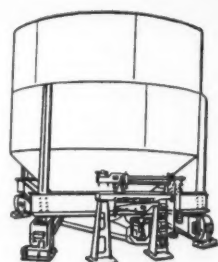


Speeds your weigh!

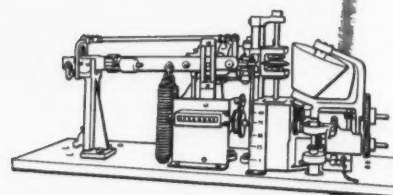
FAIRBANKS-MORSE,

a name worth remembering

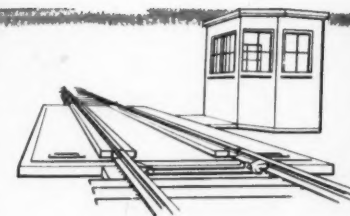
SCALES • DIESEL LOCOMOTIVES AND ENGINES
• ELECTRICAL MACHINERY • PUMPS • HOME
WATER SERVICE EQUIPMENT • RAIL CARS •
FARM MACHINERY • MAGNETOS



Hopper Scales



Belt Conveyor Scales



Railroad Track Scales

Fairbanks, Morse & Co., 600 South Michigan Avenue, Chicago 5, Illinois

MODERN TIME AND COST SAVERS

BUILT BY... **Standard**
GRAVITY & POWER
CONVEYORS

LIFT OR
LOWER—
FLOOR TO
FLOOR
WITH A



STANDARD INCLINEBELT

Move boxes, cases, cartons, sacks or bundles from basement to first floor, or any floor to floor — continuously with the Standard Inclinebelt. Compact — simple to install — minimum maintenance and attention. Lifts or lowers 10 to 20 lbs. of live load per ft.; floor elevations of 8 ft. to 14 ft. 6 inches inclusive; two belt widths to handle commodities 15½ inches to 25½ inches wide.

Electric motor operated. Write for INCLINEBELT Bulletin — address Dept. CP-62.



STANDARD CONVEYOR COMPANY
General Offices: North St. Paul 9, Minn.
Sales and Service in Principal Cities

When inquiring check CP 2957 on handy form, pgs. 2-3

YOU BENEFIT 3 WAYS

with a
MARIETTA STORAGE SYSTEM!



FLEXIBILITY Tanks in sizes from 10 to 30 ft. in diameter, 30 to 100 ft. in height, can be erected in line, cluster or combined with existing units to meet your present and future storage plans.

PROTECTION Stored bulk chemicals are protected against fire, heat, moisture, air, wind and the elements. Tanks are permanently constructed of Air-Cell or solid concrete staves and reinforced with steel on exterior.

ECONOMY Tanks reduce spoilage and waste, are virtually maintenance-free, and because of their permanent construction and protection features, usually result in a substantial reduction in insurance costs.

Write for full details and illustrated literature.

the MARIETTA concrete corporation
Marietta, Ohio • Baltimore, Md. • Charlotte, N. C.

When inquiring check CP 2958 on handy form, pgs. 2-3

Material Handling



A pallet of 80 cases of beer is jockeyed into position for the smaller transporter to move it aboard a trailer

Less Brawn and More Brew Results With Fleet of Lift Trucks



Storage and loading of beer during peak season is speeded to meet heavy shipment demands

Barrels remain safely on pallets while they are moved into storage by lift truck prior to delivery

PROBLEM: Loading the daily output of beer from the F & M Schaefer Brewing Company's plant in Brooklyn, N. Y., into freight cars, trucks, and barges for export was a hazardous, time-consuming, and expensive job. Yet, until recently, by sheer brawn on the part of the employees, a Herculean effort enabled the company to somehow keep abreast of its orders. With increased demands for the brew, however, officials realized that to continue this shipping method was growing more and more hazardous and costly — they set out to overcome this situation and at the same time

speed up handling of the bottles, cases, and barrels. **Solution:** An assembly line basis, using nine automatic lift trucks and two driver-led units, was set up to fill orders from the storage space through the plant to the docks. In the bottling section of the plant, the trucks feed pallet loads of beer cans to the can filling machines. On the third floor they glide in and out with cases of beer loaded on pallets destined for the storage areas. In still another section, the trucks move up to the end of a conveyor and take off palletized loads of barreled beer and head for the cool storage space. (By

holding the barrels in place with curved strips, as many as a dozen and a half barrels can be stacked on one pallet.) As a safeguard against exhaust fumes impairing the quality of the brew, the firm uses electric-powered trucks for all inside handling.

Results: By palletizing packaged beer and using fork trucks, three major advantages have been realized: 1) Movement of materials has been at least tripled. (Two loads per trailer can now be carried in the time formerly required to distribute one.) 2) Efficiency of the entire plant has been increased since the introduction of the trucks in handling the beer. 3) An appreciable amount of warehouse storage space has been saved. In addition, the hazardous, back-breaking method of hand-loading the more than 100,000 cases of beer daily has been virtually eliminated.

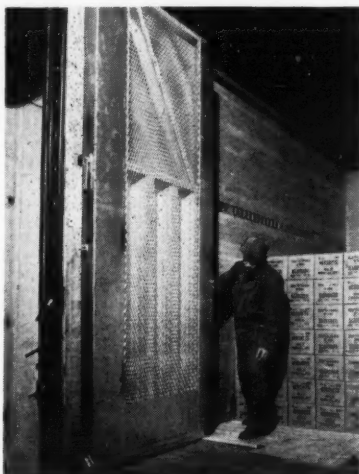
(Skylift trucks now used in the Schaefer plant are manufactured by the Automatic Transportation Company, Dept. CP, 149 W. 87th St., Chicago 20, Ill. For more information check CP 2959 on handy form, pages 2-3.)

Sliding gates divide box cars into compartments, prevent shifting of LCL shipments . . .

partitions locked snugly against loads to protect cased foods, other fragile products, in transit

INDIVIDUAL compartments for LCL shipments are provided in specially designed box cars that after extensive tests are now in regular service on the Western Pacific Railroad. As gates, which form partitions to seal off different shipments, can be fitted snugly against load and locked, cargo cannot shift during transit. Mixing of lading is eliminated and loading and unloading is speeded up.

Box car, itself is the conventional steel type, provided with adjustable steel gates, usually two pairs to a car. Each gate is pivotally mounted to a vertical member carried



Gates fold back until LCL shipment is loaded, are then swung into place and locked securely

by a trolley which travels along a longitudinal track installed near the roof and running the full length of the car.

With gates opened, freight is loaded into one end of the car. With load stowed, gates are moved up snug and locked. Other end is similarly loaded and gates positioned. Center area, at doors, becomes third compartment.

One man can quickly position gates and lock them. Bracing and tying of loads is not often required. As gates fold out of way against side walls of car there is no interference during loading to handling equipment. End compartments rarely extend close to car door.

Each gate is secured at four points by manually operated locks placed at the four corners. This arrangement is a direct and simple mechanism for engaging heavy square

(Continued on page 57)



CONVEYING Systems

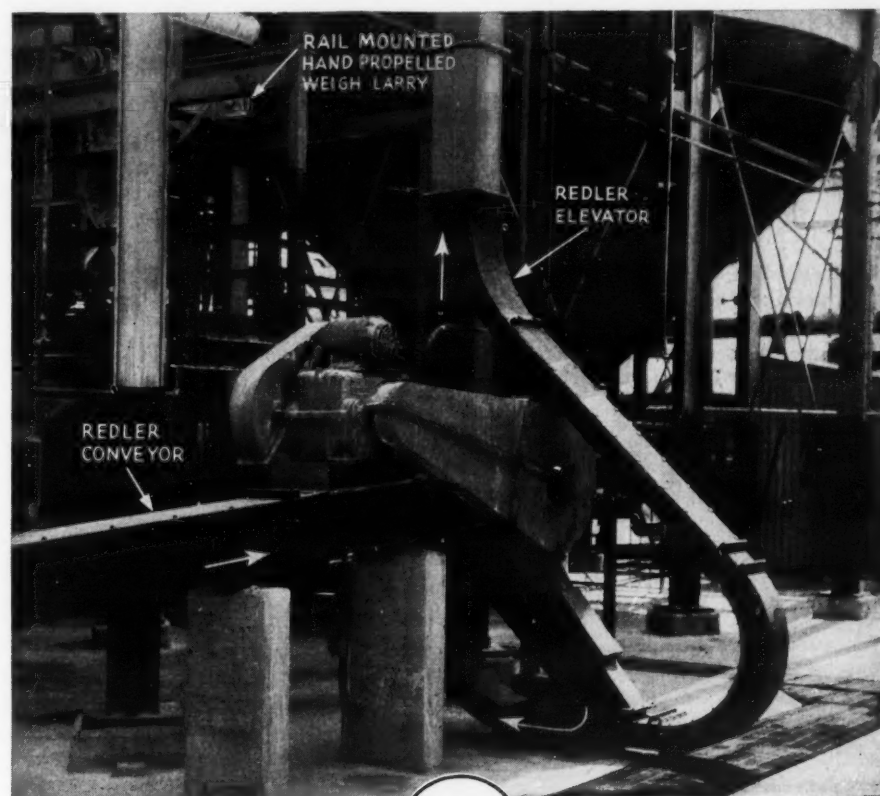
**Prove Superior for Handling
WATER TREATMENT CHEMICALS**

When the handling of hygroscopic materials must be accomplished without absorption of moisture, even during periods of high humidity—when materials must be moved without spillage and without contamination . . . that's when S-A engineers and equipment prove outstandingly superior! . . . Regardless of your particular materials handling problem, S-A engineers draw upon more than half a century of specialized experience—have at their command a complete line of bulk materials handling equipment. Write for complete information . . . no obligation.

A REDLER Conveyor with totally-enclosed casing receives water treatment chemicals from a track hopper—conveys them 62 feet to the loop-hoist feed section of a REDLER Elevator-Conveyor which lifts them 50 feet to a 54-foot long horizontal run over three storage bins. Materials are reclaimed by an S-A Weigh Larry operating under the bins.

REDLER Conveyor-Elevators
ZIPPER Conveyor-Elevators
Vibrating Conveyors
Belt Conveyors
Screw Conveyors
Bucket Elevators
Pan Conveyors
Belt, Pan & Plate Feeders
Circular Bin Dischargers
Centrifugal Loaders & Pilers
Vibrating Screen
TELLEVE Bin Level Controls
Ship Loaders & Unloaders
Crushers, Roll & Ring Type
Storage & Reclaiming Systems
Bin Gates, All Types
SEALMASTER Ball Bearing Units

Write for Bulletins on any of the above



STEPHEN S-ADAMSON

11 Ridgeway Avenue, Aurora, Illinois

MFG. CO.

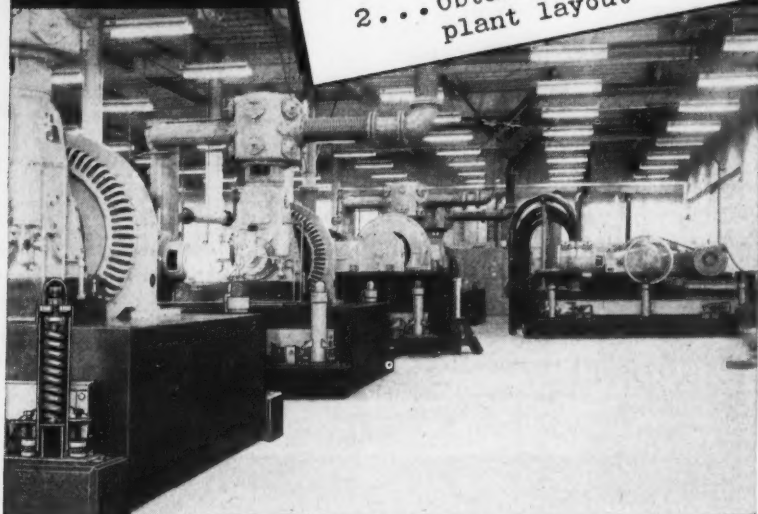
Los Angeles, Calif., Belleville, Ontario

DESIGNERS AND MANUFACTURERS OF ALL TYPES OF BULK MATERIALS HANDLING EQUIPMENT

When inquiring check CP 2960 on handy form, pgs. 2-3

Here's
How

Courtauld's (Canada) Limited
1... Cut building
and machinery
foundation costs
2... Obtained better
plant layout



Installed on the mezzanine floor at Courtauld's (Canada) Limited are 15 large compressors and vacuum pumps, all supported on special Korfund steel spring vibrators. This view of a portion of the mezzanine shows the method of mounting this battery of I-R and York equipment.

...by controlling vibration

For best plant and machinery layout, and for lowest construction costs, Courtauld's and its engineers, Robert A. Rankin Co., wanted to construct a new building in a central location—with this heavy equipment on a mezzanine floor. Since this rayon plant is almost completely automatic in operation, however, they had to be absolutely certain that no transmitted vibration would upset delicate electronic controls.

Korfund engineers designed special spring-isolated bases for the pumps and compressors, and Courtauld's was able to place them on the mezzanine with no disturbance transmitted to other floors or to electronic controls.

Courtauld's saved the extra cost of piling for each foundation which would have been necessary for the usual basement installation, and obtained better plant layout. In fact, Courtauld's reported that Korfund isolators more than paid for themselves in reduced construction costs alone.

For less exacting installations, there are standard stock Korfund isolators. A selector chart in Bulletin G-104 gives recommendations for both normal and critical conditions, for pumps, compressors, centrifuges, machine tools, presses, hammers, and most other processing and mechanical equipment. See Sweet's Catalog Files, or write us for your free copy today.

We'll gladly submit recommendations without obligation. Just contact us, or the Korfund representative you'll find in most principal cities. A half century of experience is at your disposal.



Representatives in Principal Cities
SPRINGS RUBBER COR-
THE KORFUND COMPANY, INC.
48-13E Thirty Second Place • Long Island City 1, N. Y.

When inquiring check CP 2961 on handy form, pgs. 2-3

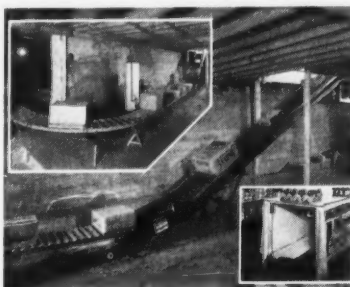
MATERIAL HANDLING

Basement installations use gravity and power conveyor units...

space at outlet is serviceable for display or storage.

Combined gravity and "Power Helper" conveyor units may be utilized in basement installations. Goods are received by chute and gravity line from any point in basement. They are then transported by gravity and power conveyor to floor above. At this outlet, floor space may be utilized for display or storage.

Gravity conveyor is 15" OA with four rollers per foot. "Power Helper" has 16" OA belt. Boom length is 14'6" on 25° incline with 2' power



Goods may be carried around corner (upper left), transported to floor above, and outlet space (lower right) may be used for display or storage

tail section. Unit is powered by $\frac{3}{4}$ hp, 440 v electric motor which is mounted under the outlet. On-off-reverse buttons are flush mounted at top and bottom of installation.

(Manufacturer is Metzgar Co., Dept. CP, 449 Douglas St., N.W., Grand Rapids 4, Mich. . . . or for more information check CP 2962 on handy form, pages 2 and 3.)

Pictures view 5 types of industrial hose

Twenty-page catalog illustrates five types of industrial hose. Sectional and cutaway views are given for various types. Tubing is intended for low, medium, high, and medium high pressures. Assembly instructions are provided in sequence and photographs show step by step procedure. Specifications are included in the catalog for each type of hose.

Technical data also cover male and swivel couplings, 35° and 45° flare adapters, and swivel adapter unions. Cat H-1451-C is issued by The Weatherhead Company, Dept. CP, 300 E. 131st St., Cleveland 8, Ohio. When inquiring specify CP 2963 on handy form, pages 2 and 3.

SPO AIR VIBRATORS

BINS HOPPERS		CHUTES		CONVEYORS	
	PACKAGING TABLES		CONCRETE FORMS		MOLDING MACHINES
BENCHES SCREENS			FATIGUE TESTING	<p>Specify SPO dependable, low-cost air vibrators for all materials handling and foundry applications.</p> <p>SPO vibrators feature full power starting, hammer-like blows, high-speed operation, long trouble-free service life.</p> <p>Blow for blow, you can't beat SPO air vibrators! For information on complete line, write today for Bulletin 50.</p> <p>SPO INCORPORATED 6531 Grand Division Ave. • Cleveland 25, Ohio</p>	

When inquiring check CP 2964 on handy form, pgs. 2-3

BAKER TRUCKS require LESS MAINTENANCE

to you this means

- LESS TIME OUT OF SERVICE
- TOP OPERATING EFFICIENCY
- LOWER OVERALL COST

Baker Trucks are built to give maximum trouble-free service, and designed for easier preventive maintenance and less costly repairs.



Electric dynamic braking saves wear on brake linings and protects truck parts. Service brakes can be adjusted in 5 min., and relined in 30 min.

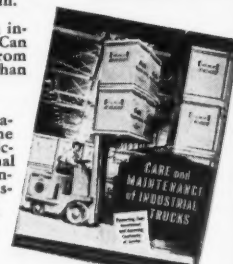


Power Axle has fewer moving parts and is less subject to wear. Most assembly can be removed in 20 min. and power axle pulled in 40 min.

Trailing Axle is the simplest in use on industrial trucks. Can be removed from truck in less than 20 minutes.



These 3 illustrations are from the new 16-page picture-story manual "Care and Maintenance of Industrial Trucks." Write for your copy today.



BAKER INDUSTRIAL TRUCK DIVISION of The Baker-Raulang Company
1208 West 80th Street, Cleveland 2, Ohio

Baker INDUSTRIAL TRUCKS

When inquiring check CP 2965 on handy form, pgs. 2-3

CHEMICAL PROCESSING

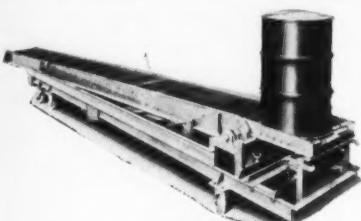
MATERIAL HANDLING

Boom is lowered quickly and safely when unloading box cars with conveyor . . .

or device can be raised hydraulically for removing drums from gondola cars

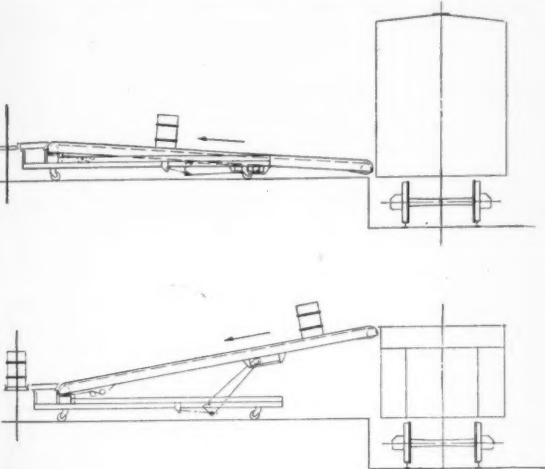
Portable, power driven, belt conveyor of the slider bed type is especially adaptable for unloading drums from either box cars or gondola cars with greater speed, less physical labor, and greater safety to the workmen.

When used with gondola cars, the boom is raised by a hydraulic lifting device. The boom may be set at any height between the maximum and minimum points of vertical travel.



Facilitates loading or unloading drums

24 1/2" wide between side frames and is 22' from center to center of pulleys. Maximum inclination of the boom is



Positions of boom for box cars and gondola cars

11° from the horizontal. Belt speed is approximately 40 fpm. Power is furnished by a 1 hp motor through a speed reducer.

(Development of Alvey Conveyor Mfg. Co., Dept. CP, 9301 Olive Street Rd., St. Louis, Mo. . . or for more information check CP 2966 on handy form, pages 2 and 3.)

Pictorial guide to shovel-cranes

Sixteen models of shovel-cranes are shown in eight-page booklet. Each piece of equipment is illustrated and briefly described. Cranes range from 1/2 to three yd capacities, and equipment may be mounted on truck, crawler, or wheels. Lifting capacities range from 10 to 60 tons. Two-color booklet provides listing of "master books" which contain complete data on each model. Many applications of cranes include hoisting, excavating, loading, etc.

Book 2373 is issued by Link-Belt Speeder Corporation, Dept. CP, 1201 Sixth St., SW, Cedar Rapids, Ia. When inquiring specify CP 2967 on handy form, pages 2 and 3.

JUNE, 1952



"OH

MY ACHIN' BACK"

at \$ Per Day Per Back

Cut Non-Productive Time

with Ajax Lo-Veyors

One of your *few remaining ways* to pare down your rising costs is to cut your materials handling costs. Today, more than ever before, non-productive time and overhead is of vital concern.

Ajax Lo-Veyors are helping many industries speed up materials handling between departments, between machines, between operations and processes.

Ajax Lo-Veyors provide automatic, trouble-free handling of bulk materials in and outdoors, under abrasive, corrosive, poisonous and explosive-laden air.

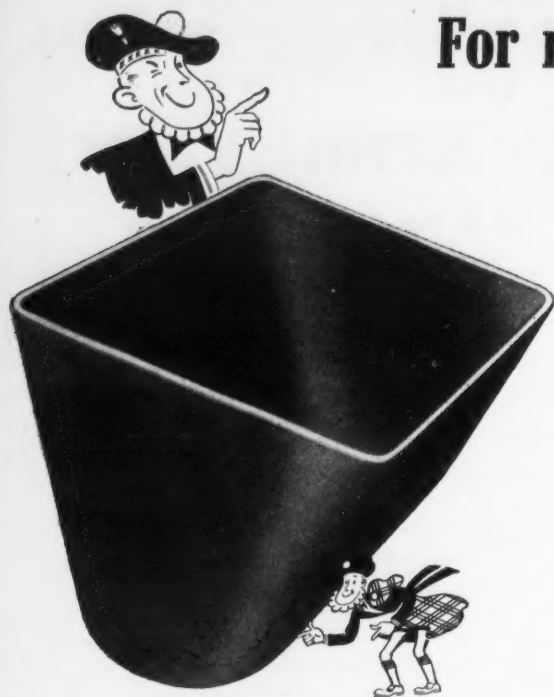
Write for facts on the advantages of Ajax Vibrating Conveyors.



LO-VEYORS

AJAX FLEXIBLE COUPLING CO. INC. • WESTFIELD, NEW YORK

When inquiring check CP 2968 on handy form, pgs. 2-3



For rugged, 3-shift service... specify LINK-BELT Cast Buckets

You get extra dividends in longer life with Link-Belt Cast Buckets —

- Abrasion, corrosion and tough usage meet their match in top-grade Link-Belt malleable iron or Promal (the stronger, longer-wearing metal).
- Friction and wear are minimized by smooth, seamless surface.
- Corners are reinforced for added strength.

Equally important, accurate balance and advanced design give you the proper filling... clean discharge.

Link-Belt builds all sizes in six different styles... for either chain or belt mounting. Complete L-B line also includes steel buckets of various designs. The next time you replace your elevator buckets, call your Link-Belt representative for all the facts.

LINK-BELT
CAST ELEVATOR BUCKETS

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa). Offices, Factory Branch Stores and Distributors in principal cities.

12,518

When inquiring check CP 2969 on handy form, pgs. 2-3

SELECT-O-WEIGH

(ELECTRONIC WEIGHT CONTROL)

Remote, Instantaneous, Dial-Control
Formula Changing and Ingredient Selection

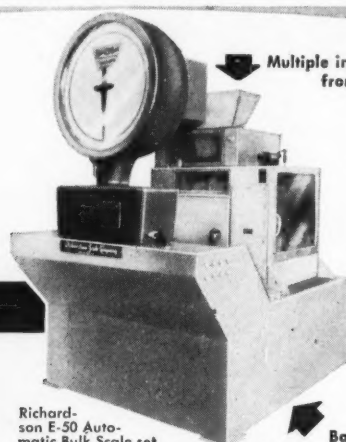
For **PROPORTIONING** Applications

Select-O-Weigh, Richardson's electronic weight control system, reduces the most complex formula-changing and ingredient-selection problem to push-button simplicity. For with Select-O-Weigh you select, measure, and deliver up to twelve ingredients from a single, pre-set, remote-automatic control panel.

Through incorporation of a simple, fool-proof electronic circuit, Select-O-Weigh changes formulas instantly, with the setting of a dial—no sliding poise adjustments or manual weight changing. And a single, automatic scale handles many ingredients—up to twelve or more.

Select-O-Weigh is designed for either cumulative or consecutive weighing, and can be used with many existing automatic scales.

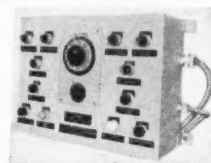
Write for Select-O-Weigh Bulletin #0351.



Richardson E-50 Automatic Bulk Scale set up for operation with the Select-O-Weigh. Discharge from E-50 would be through hopper to next operation on floor below.

Multiple ingredients from feeders

Control panel for Select-O-Weigh handling constantly varying amounts of a single material. Weight desired is set on control dial, and compensation on smaller vernier knob below it. Multiple control dials for multiple ingredients.



Batch hopper capacity to suit

Feeder-Weigher Systems • Automatic Bulk Weighing Hopper Scales
Automatic Bagging Scales • Bag Sewing Conveyors • Packers
Process Control Panels and Select-O-Weigh

Please write direct to our Clifton office, or to the nearest of our branch offices, located in Atlanta, Boston, Detroit, Minneapolis, Cincinnati, Wichita, Montreal, Omaha, New York, Pittsburgh, San Francisco, Toronto, Buffalo, Chicago, Philadelphia, Houston.

Richardson

MATERIALS HANDLING BY WEIGHT SINCE 1902

8300

MATERIAL HANDLING

Pneumatic Conveying

(Continued from page 47)

Handling Thermosetting Compounds

The system for handling thermosetting compounds is identical to the one for thermoplastic compounds except for the number of tanks and the delivery part of the system. There are 26 tanks instead of 18, providing a six to eight weeks' reserve supply. All tanks are the same size and capacity.

The delivery from tanks to receiver-filter in the conveyor building duplicates the thermoplastic compound facilities. From here the material flows to either of two 5000-pound capacity process tanks 200 feet away and above the roof of a main building annex that contains preform presses. Hoppers on the presses are gravity fed from either of the process tanks, making it possible to supply either of two brands of compounds to any press at any time.

Control from Panel Boards

Separate control panels for the two conveying systems are situated in the conveyor building. Besides the high-level and low-level alarms, the panels have a system of indicator lights that show how the piping is connected and which tank is being filled or is delivering material to process. Indicators also show the electrical continuity which must prevail before the conveying machinery can be started up.

Other lights show when material is flowing in the system, thus indicating when a storage tank is empty. A locking switch on the panel controls each tank outlet feeder, and an indicator light shows the feeder that is in operation. Secondary protective devices in the conveying systems shut them down in case excessive pressures are built up from mechanical failure, or in case of a plug-up from failure of a high-level control.

Results: These systems have performed well with little servicing required, economically solving the problems of storing and handling the large volumes of plastics needed in making Bell telephone sets.

Some advantages of pneumatic handling that were particularly important in this application were: 1) relatively clean pick-up for materials with dust in them (the thermosetting compounds, particularly, contain dust), 2) ease of cleaning, 3) virtual elimination of dust explosion possibilities because the velocity and turbulence in the lines and the high ratio of material to air are such that ignition is next to impossible, and 4) ease of designing for tightness against dust and weather conditions.

(Conveying equipment, controls, and allied equipment were installed by the Fuller Company, Dept. CP, Catasauqua, Pa. . . or for more information check CP 2971 on handy form, pages 2 and 3.)

Heavy loads are moved smoothly up or down at various speeds with lift . . .

with minimum safety factor of 4, models have capacities from one to six tons

Uses: In plants or warehouses to facilitate heavy loading of trucks and railroad cars, or as level-to-level or floor-to-floor transfer of heavy material.

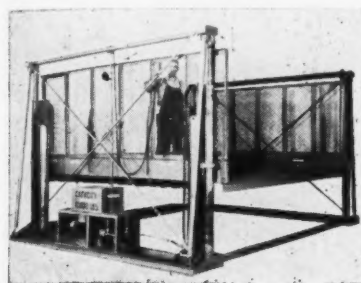
Features: Electric-hydraulic powered, and designed for

CHEMICAL PROCESSING

MATERIAL HANDLING

continuous operation, lifts have minimum safety factor of 4, "Deadman"-type pushbutton control.

Description: "Four Poster" models are available in capacities from 2000 to 12,000 lb, platform sizes from 5 x 5' to 12 x 12', lift height from 5 to 17', and at speeds from 8 to 23' per minute. Other features of the models include: 1) expanded metal platform guards, 2) non-skid steel platforms, 3) positive stops to prevent overtravel of rams, 4) overload relief in hydraulic systems, 5) post rings to lock platforms to posts if chain fails.

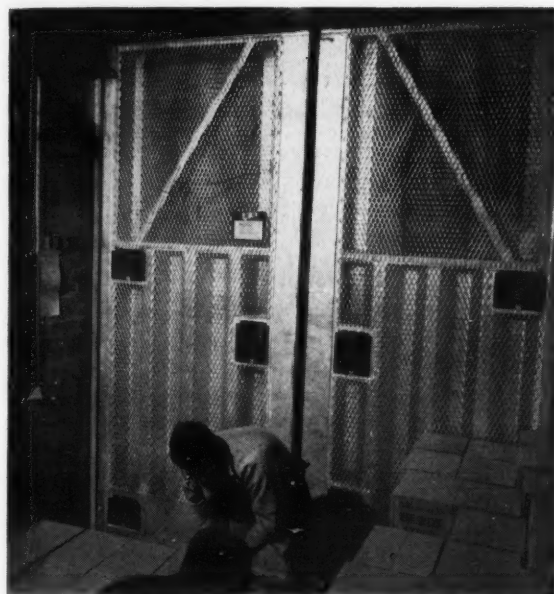


Uses electric-hydraulic power; capacities from 2000-12,000 lb

(Development of Service Caster and Truck Corp., Dept. CP, Albion, Mich. . . . or for more information check CP 2972 on handy form, pages 2 and 3.)

Compartmentized Box Car Doors

(Continued from page 53)



After gates are locked against ladings at each end of car, center area is loaded to make up third compartment

bars with keepers in the car floor, on side and at the car roof. (Note keeper strip at top of car in large photo.) When set, the locks will not jar open. Gates may be positioned wherever desired at approximate 3" intervals. Pairs may be locked in the same axial straight line or staggered as required by the lading. While normal installation involves two pairs, more gates can be used if needed. As gates can be stored at end of car, they do not prevent its being used in the conventional manner in small space.

(Compartmentizer cars with adjustable gates are built by Pullman Standard Car Co., 79 E. Adams St., Chicago 3, Ill. . . . or for more information check CP 2973 on handy form, pages 2 and 3.)

HANDLING "TOUGH" MATERIALS?—



A 60' Carrier Natural-Frequency screening conveyor for clay products, with 24" pan made of 1/4" steel plate. Capacity: 100 tons of 100-pound material per hour. 5 H.P. drive. Middle section of screen removed to show supporting bridge.

Close-up of drive — note patented drive linkage which always places weight of vibrating pan and conveyed materials on the spring supports, and never allows these loads to be imposed on the eccentric shaft and bearings.

anything that's hot, sharp, powdered, oily, abrasive, sticky, granulated or stringy?

Check These Advantages!

- **LESS POWER REQUIRED**
(1000 foot-tons per hour per H.P.)
- **LESS MAINTENANCE & DOWN-TIME**
(Less power + good design = good service)
- **GREATER CAPACITY**
(From a dribble up to 200 tons per hour)
- **HIGH CONVEYING SPEED**
(Up to 100 feet per minute, on flat hauls)
- **NO DAMPENING UNDER LOAD**
(Designed with extra power for specified load, with positive stroke)
- **SELF CLEANING**
(Continuous smooth trough—no pockets)
- **SCREENS, DEWATERS, SEPARATES, BLENDS, DRIES, COOLS**
(Combines processing with conveying)
- **WIDTHS FROM 6" TO 48"; LENGTHS FROM 5' ON UP**
(With pans 16 gauge to 1/2" plate or heavier, open or enclosed)
- **BALANCED, VIBRATION-FREE UNITS AVAILABLE**
(For use on ceilings or light floor construction)

CARRIER NATURAL-FREQUENCY CONVEYORS

Carrier Natural-Frequency Conveyors work on a unique, patented vibrating principle which permits them to handle many materials that are too "tough" for most screw, belt, apron, vibrating and other conventional types of conveyors. These spectacular new conveyors also substitute the natural resonance action of coil springs for brute force. Result—a tremendous reduction in power . . . far less wear-and-tear . . . and an absolute minimum of maintenance and down-time!

Carrier Natural-Frequency Conveyors — including vertical vibrating spiral types — are now racking up amazing conveying records for scores of America's biggest, most successful industrials. Let us prove to you that they will move *your* product more quickly, efficiently and economically. Mail the coupon — no obligation of course!

Carrier Conveyor Corporation (formerly Whitley-Carrier Co.)
Frankfort Avenue at Clifton, Louisville 6, Kentucky

Gentlemen:

Without obligation, please send me Carrier Natural-Frequency Conveyor Bulletin No. 107.

Firm _____
Street _____
City _____ State _____
Att. Mr. _____ Dept. _____

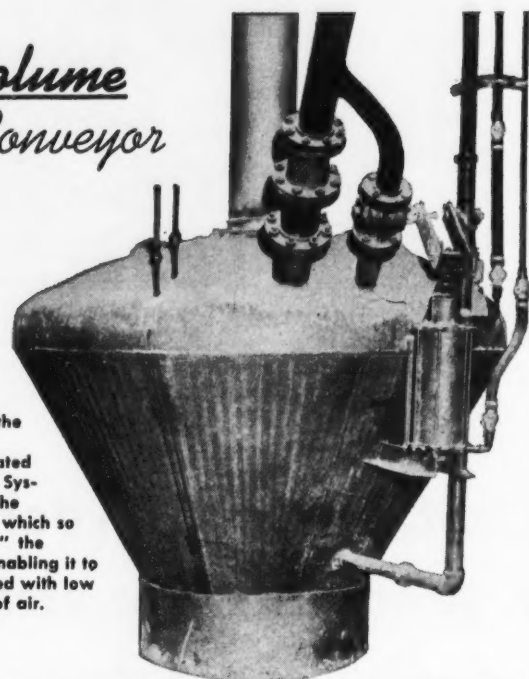
When inquiring check CP 2974 on handy form, pgs. 2-3

Robinson

Air Activated

Conveyor

The
Low-volume
Air Conveyor



► Heart of the Robinson Air-Activated Conveyor System . . . the Activator which so "fluidizes" the charge, enabling it to be handled with low volumes of air.

Averages 1 Cubic Foot of Air per Pound of Materials Handled

Right here is one reason — and a stand-out reason — why the Robinson Air-Activated Conveyor is so economical in handling bulk dry-pulverized and fine-granular materials. Compressed air costs money so, if you can hold air costs down, as with the Robinson, you keep handling costs down. And no other power is necessary to operate a Robinson System.

The reason why the Robinson System can operate with such low air volume is due to the fluidized nature of the charge when transported through the pipes. Pressure alone will not suffice. It requires this Robinson Air-Activation or fluidizing effect. Material "flows" rather than blasts through.

Many Robinson Systems are in service handling a variety of products and in some cases are transporting them several thousand feet. This system may be just what you need for handling those dry, bulk materials in your plant. It has several outstanding features which we'll be glad to discuss at your convenience.

ROBINSON

Air Activated

A Division of
Morse Boulger Destructor Co.

CONVEYOR SYSTEMS

211-V EAST 42nd ST. • NEW YORK 17, N. Y.

Representatives in Principal Cities

When inquiring check CP 2975 on handy form, pgs. 2-3

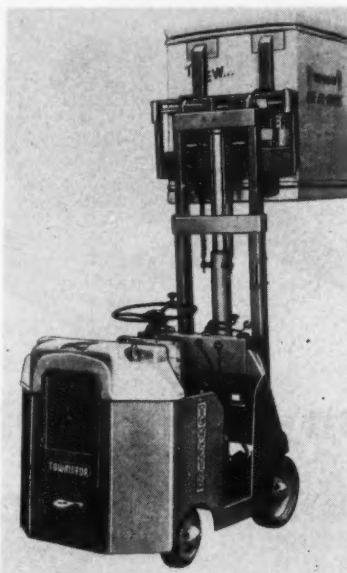
MATERIAL HANDLING

Carton lift can handle heavy containers without pallets . . .

lift touches side of carton only near top and bottom, where strength is greatest

Uses: For handling material in heavy cartons or in similar containers.

Features: Pallets are eliminated and one or two cartons can be lifted at one time. Since lift touches side of carton only near top and bottom, damage to load is prevented. Carton lift is interchangeable with standard forks.



Carton lift mounted on truck and in action

Description:

Lift has an overall lowered height of 37 1/4". When lifting, machine is positioned to face load with lift in contact with side of container. As carriage is raised, spade-like, beveled arms move upward and under interlocking cover flanges of containers. Load is then lifted and is ready to be moved.

Base supports of lift are designed to slide to beveled arms. When load is raised, weight of base pieces

causes them to remain near bottom of carton, assuring maximum load stability. Arms can be adjusted laterally to handle cartons of varying widths.

Container shown in photograph is 33" long by 26" wide by 42" high, weighs 350 lb with contents. The carton lift is a special item, not standard.

(Product of Towmotor Corporation, Dept. CP, 1226 E. 152nd st., Cleveland 10, Ohio . . . or for more information check CP 2976 on handy form, pages 2 & 3.)

Heavy duty wheels move products by gravity and eliminate bulkier conveyors . . .

axles are reinforced at strain points; five-foot sections can support distributed weight of 2000 lb

Uses: For general industrial use where sturdy, gravity feed conveyors are required.

Features: Evenly-spaced wheel conveyor can be used in place of bulkier, more expensive roller conveyor units. Construction features permit distributed loads up to a ton to be safely handled on a five-foot section.

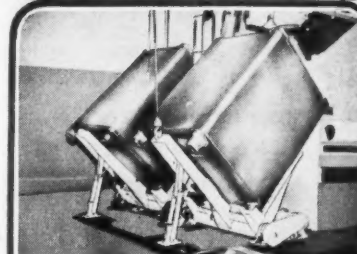
Description: Industrial Rapid-Wheel conveyor has 3 1/2" deep channel frames of 12-gage steel for strength and rigidity. Each lane of wheels is reinforced with steel center band which supports the axles at the point of the greatest strain. Conveyor is manufactured in 5 and 10' sections 12 and 18" wide and in 45 and 90°

TOTE

SYSTEM* . . .

Biggest Boon to Bulk Material Handlers

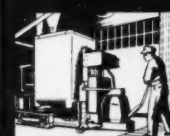
since the "Birth
of the Barrel!"



The modern TOTE SYSTEM has completely outmoded ordinary methods of handling all types of bulk materials.

TOTE SYSTEM — built around 74 cu. ft. aluminum TOTE* BINS together with filling and discharging equipment — is the practical, economical answer to problems of handling, shipping and storing bulk materials.

TOTE SYSTEM insures absolute product uniformity — permits pre-testing of bulk materials before packaging — assures proper blending.



Filling TOTE* bins



Transporting TOTE* bins

TOTE assures retention of original product quality . . . eliminates sources of contamination and deterioration . . . stops losses due to spilling, breaking and sifting.

Save time, handling, space and container cost with TOTE!

Write today for detailed, illustrated literature on the TOTE SYSTEM

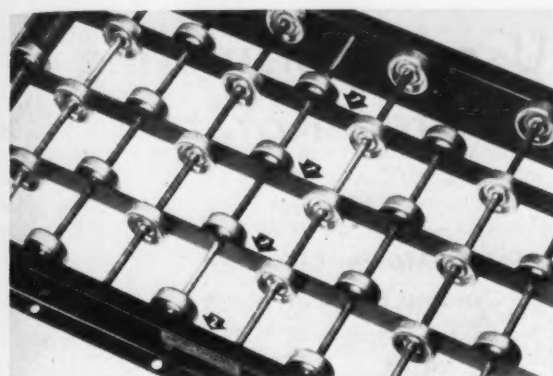
TOTE SYSTEM, INC.

680 South 7th St. Beatrice, Nebr

*Both TOTE SYSTEM AND TOTE Reg. U.S. Pat. Off.

When inquiring check CP 2977 on handy form, pgs. 2-3

CHEMICAL PROCESSING



A five-foot section can support one ton

curves. Is available with either tubular or channel-type guard rails, or may be used without guard rails for handling materials wider than the conveyor.

(Development of The Rapids-Standard Co., Inc., Dept. CP, 342 Rapistan Bldg., Grand Rapids 2, Mich. . . or for more information check CP 2978 on handy form, pages 2 and 3.)

Gravity brings parts from container to within close proximity of worker . . .

units are equipped with drop-bottoms that do not stick but that can stack conveniently

Uses: For storing small or medium parts near operator's work point.

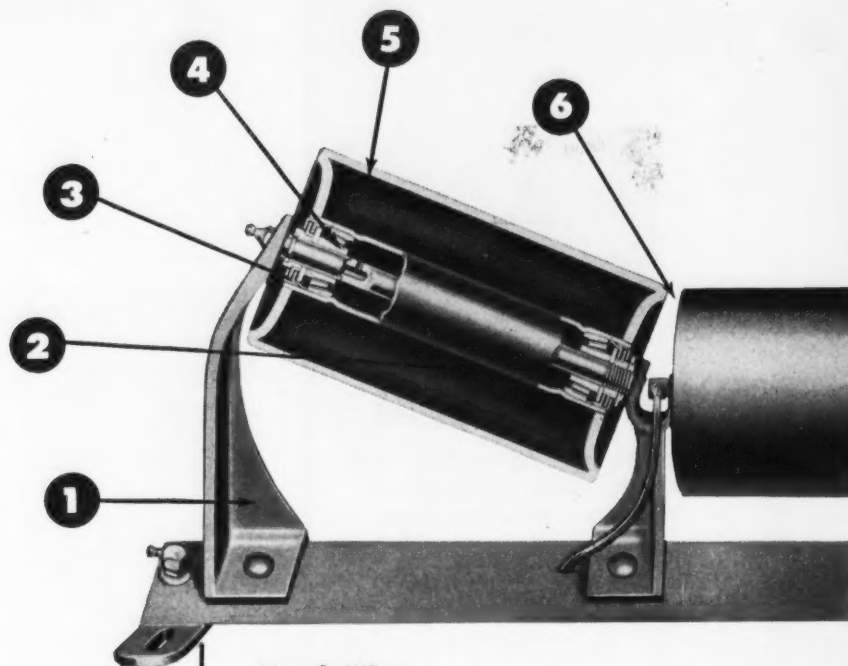
Features: Gravity flow combined with bottom drop allow parts to be released from bottom container. Can be stacked to save floor space. There are no corrugations to catch parts and prevent bottom from dropping.

Description: Drop-Bottom containers are constructed of 12 gage steel, with solid sides from top to bottom, reinforced with 2" channels and electric welded throughout. Besides being accessible to fork trucks, the stacking strips welded at four points on the top allow loops for overhead lifting equipment. Drop bottom opening is 13" high and 31½" wide. In the box shown in photo, overall sizes are 36" wide, 48" long, and 39" high. Capacity is ¾ yd; weight is approximately 400 pounds.

(Development of the Roura Iron Works, Inc., Dept. CP, 1401 Woodland Ave., Detroit 11, Mich. . . or for more information check CP 2979 on handy form, pages 2 and 3.)

Drop bottom containers are meant for heavy duty

make sure you get full value for your belt conveying dollar



Here's Why:

1. The supporting brackets are unbreakable in normal operation. They remain rigidly tight and will stand abnormal usage without breaking.
2. The bearing mountings maintain positive bearing alignment under all conditions.
3. Rex Idlers have positive and permanent bearing protection against dust and dirt, and require minimum service attention . . . once every 1000 hours in normal operation.
4. Rex Idlers have high grade, precision, antifriction bearings with ample radial and thrust load capacity. This means lowest power consumption under all conditions.
5. The roll shells are of permanent unit construction with no joints to loosen or corrode. No replacements until idler is completely worn out.
6. The idler rolls are smooth and concentric and spaced in the idler assembly to protect the underside of the belt. The roll units are interchangeable for easy servicing.

If your idlers have all these features, you're getting the most for your idler dollar . . . you're using Rex Idlers. If you're using any other idler, it can't possibly have all these outstanding features . . . you can't be getting lowest possible cost per ton handled on your belt conveyor.

So, if you haven't yet standardized on Rex Idlers, call your nearest Chain Belt Field Sales Engineer. He'll give you all the details. Or, if you prefer, write for Bulletin 51-81. Chain Belt Co., 4694 W. Greenfield Ave., Milwaukee 1, Wis.

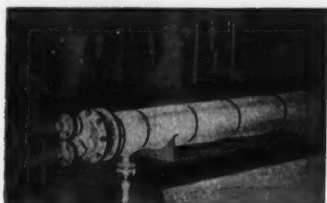


Chain Belt COMPANY OF MILWAUKEE

Atlanta • Baltimore • Birmingham • Boston • Buffalo • Chicago • Cincinnati • Cleveland • Dallas • Denver • Detroit • El Paso • Houston • Indianapolis • Jacksonville • Kansas City • Los Angeles • Louisville • Midland, Texas • Milwaukee • Minneapolis • New York • Philadelphia • Pittsburgh • Portland, Oregon • Springfield, Mass. • St. Louis • Salt Lake City • San Francisco • Seattle • Tulsa • Worcester
Distributors in principal cities in the United States and abroad.

When inquiring check CP 2980 on handy form, pgs. 2-3

HERE'S THE ANSWER TO YOUR ACID HEATING OR COOLING PROBLEM..



HEIL 1277 SHELL AND TUBE EXCHANGER
WITH NOCORDAL* TUBES

PUT NOCORDAL*

IMPERVIOUS GRAPHITE *Trademark
HEATING AND COOLING
UNITS TO WORK FOR YOU

1. LONGER SERVICE LIFE

Nocordal is Practically Inert to Most Strong
Acid Solutions.

2. YOU SAVE TIME AND MONEY

Pre-Engineered Standard Units Available
in Field Tested Designs.

3. LOWER OPERATING COST

Superior Heat Transfer Characteristics
Coupled With Efficient Design.



STEAM JET
AGITATOR



IMMERSION GRID UNIT

STANDARD DESIGNS AVAILABLE FOR

- SHELL AND TUBE
- IMMERSION COILS
- ELECTRIC UNITS
- JET AGITATORS

Representatives in all Principal Cities

Other Heil Products Include: Lined Steel Pipe • Acid Proof
Maintenance Materials • Lined Process Tanks • Lead Fabrication

Heil Processing Equipment Corp.

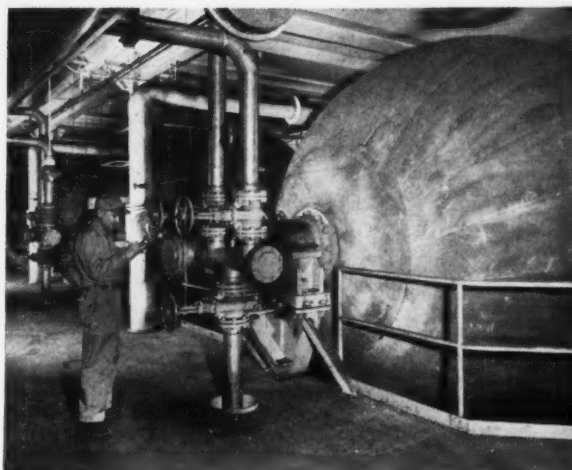
Sales Offices: New York City • Chicago
12901 Elmwood Ave., Cleveland 11, Ohio

Write Today
For
Illustrated
Bulletin

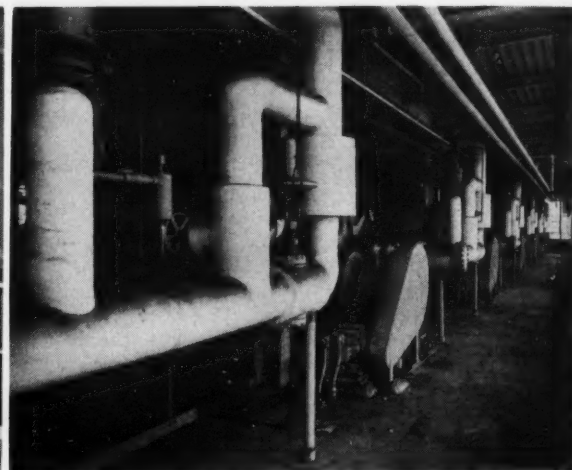
Ideas

Special Techniques Used in Insulating Spherical Digesters That Rotate

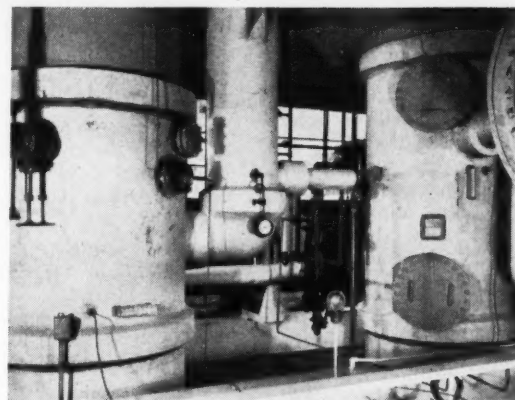
Interesting method used by M. R. Alsaker of Kelley
Asbestos in Quaker Oats' Omaha furfural plant



One of twelve 16' diameter
rotating digesters at Quaker
Oats' Omaha furfural plant.
Special methods had to be
used in insulating with 85%
magnesia



Steam lines at 125 psi to the
digesters are insulated with
85% magnesia and finished
with canvas jacket



Insulated atmospheric column (left), steam calan-
dria (center), and vacuum column (right)

INSULATION on rotat-
ing equipment has a ten-
dency to crack and shear
off unless it is fastened
properly. That is why spe-
cial application methods had
to be used when applying
85% magnesia insulation to
the twelve 16' diameter
rotary digesters in the re-
cently completed furfural
plant of The Quaker Oats
Company in Omaha, Neb.

It is in these digesters that ground corn cobs or ground
hulls of oats, cottonseed or rice are cooked with dilute
sulfuric acid and steam under pressure. Later steps re-
cover pentose sugars from which furfural is produced
by dehydration. Purity is better than 99.5%.

In applying the insulation to these large digesters, 6 by
36 by 11½" thick insulation blocks were scored at 6"
intervals so that they could be bent to the curve of the
spherical digester shell, secured to the shell with silicate
of soda adhesive, and hammered with a wooden mallet
to shape them to the surface. They were then anchored

in place with 16-gage iron
wire run between ⅜ by 2"
Nelson stud bolts previous-
ly welded to the surface of
the shell.

Joints in the insulation were
sealed with asbestos cement,
and 1¾" hexagonal wire
mesh was tightly stretched
over the insulation and
wired to the bolts and cross-
wires. A ½" layer of asbes-
tos cement, applied in two

coats, was troweled over the mesh, the first coat being
keyed through the mesh and the second coat troweled
to a smooth, hard finish.

After the cement had set, it was coated with silicate
of soda adhesive. Asbestos cloth, 1/16" thick, was then
applied, the cloth being cut to conform to the shape of
the digester and lapped 6" along all seams. The laps
were all made counter to the direction of rotation of
the digester to avoid possible catching on the accumu-
lated material on the hopper mouth below. In addition
to being sealed with silicate of soda adhesive, the laps

were also secured with $\frac{3}{4}$ by $\frac{3}{4}$ " copper staples on $\frac{3}{4}$ " centers.

For other equipment and for piping, application methods were rather simple. On large vessels the blocks were fastened in place with steel strapping; on small vessels wire was used. A foundation of 1" wire mesh was stretched over the insulation and a $\frac{1}{2}$ " layer of asbestos cement was then troweled on. For indoor equipment the finish was an 8-oz canvas jacket, sealed with adhesive. For equipment exposed to the weather the finish was asphaltic plastic cement.

Pipe insulation was secured with wire loops and finished with a 6-oz canvas jacket, applied over a 1-lb deadening felt and sealed with adhesive.

Vessels and equipment in the distillation train were insulated with $1\frac{1}{2}$ " thick 85% magnesia blocks. Steam supply piping was insulated with 2" (nominal) thick 85% magnesia sections, steam return piping with $1\frac{1}{2}$ " thick sections, and vapor and miscellaneous process piping with 1" (nominal) thick sections.

(The editors gratefully acknowledge the help of The Magnesia Insulation Manufacturers Association, Washington 4, D. C., in the preparation of this article.)

Shock of parachute landing is cushioned by use of special rubber . . .

delicate meteorological instruments are delivered intact to remote weather stations

Breakage of sensitive meteorological instruments in transit to weather stations has been practically eliminated by the Department of Transport, Toronto, Canada, by use of foamed rubber as a packing material.

Until this material was used, the Canadian weather bureau reported that one thermometer in 10 was broken in shipping, thus resulting in considerable replacement expense each year. Thermometers and other meteorological instru-

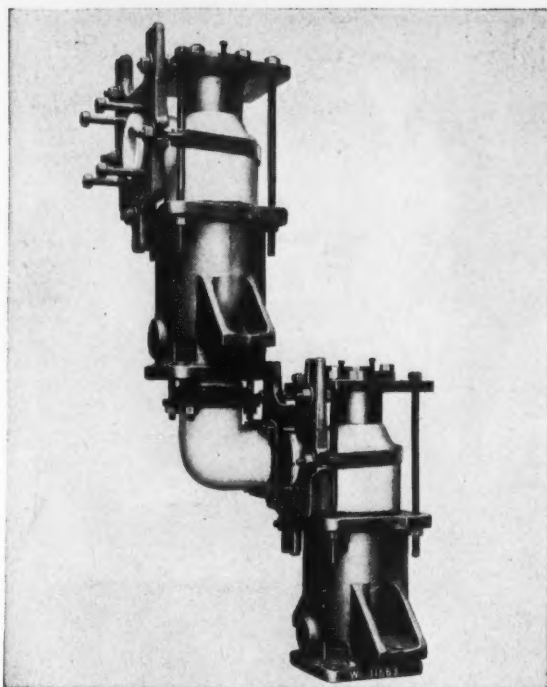


Foamed rubber pads are placed in protective positions around inside box, prior to shipping actinograph

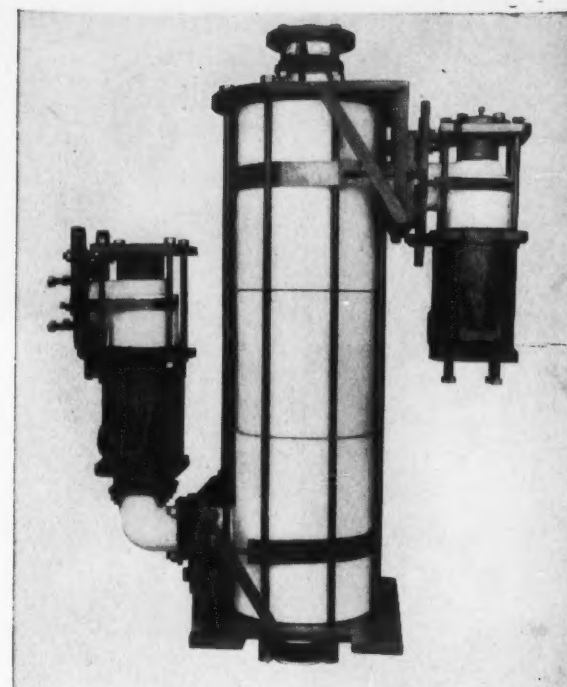
ments are shipped at all weather stations through the provinces, some of them accessible only by use of parachutes from planes part of the year.

Secret of the safe arrivals is to "float" the instrument between several pads of the foam rubber, with the material touching at only five or six points and with air in between. This allows the instrument to have movement, cushioned against the hardest knocks. This shipping application can also be adapted to other types of breakable articles, such as television tubes, optical instruments, etc.

(Information supplied by the Goodyear Tire and Rubber Co., Dept. CP, Akron, Ohio.)



Worthington two-stage non-condensing ejector—porcelain



Worthington two-stage condensing unit—porcelain

How To Maintain an Uninterrupted Vacuum in the presence of corrosive vapors

Use a Worthington corrosion-proof steam-jet ejector. These are made in stock sizes and specially engineered for handling any corrosive vapor problem in the chemical field.

For corrosive vapors, these ejectors are made with impervious graphite nozzles and diffusers. Suction chambers are of porcelain, but these can also be furnished of impervious graphite. Porcelain diffusers are also available.

For corrosion-resistant usage, Worthington makes ejectors of bronze, stainless steel or Worthite (a special Worthington "super-stainless").

Worthington's is the most complete ejector line. A model for every vacuum requirement

—from atmospheric to 50 microns absolute. Single and multiple stages. Condensing and non-condensing.

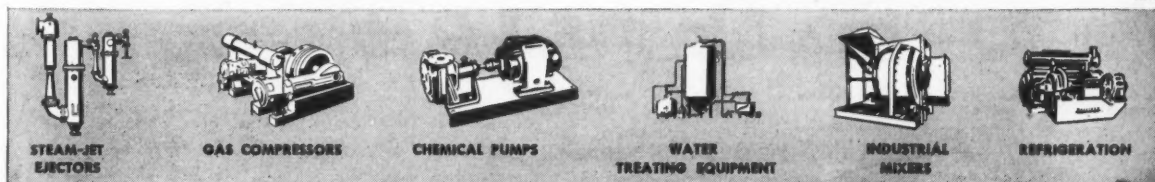
Put your problem—distillation, drying or any other vacuum problem—up to Worthington Corporation, formerly Worthington Pump and Machinery Corporation, Steam Power Division, Ejector Section, Harrison, New Jersey.

WORTHINGTON

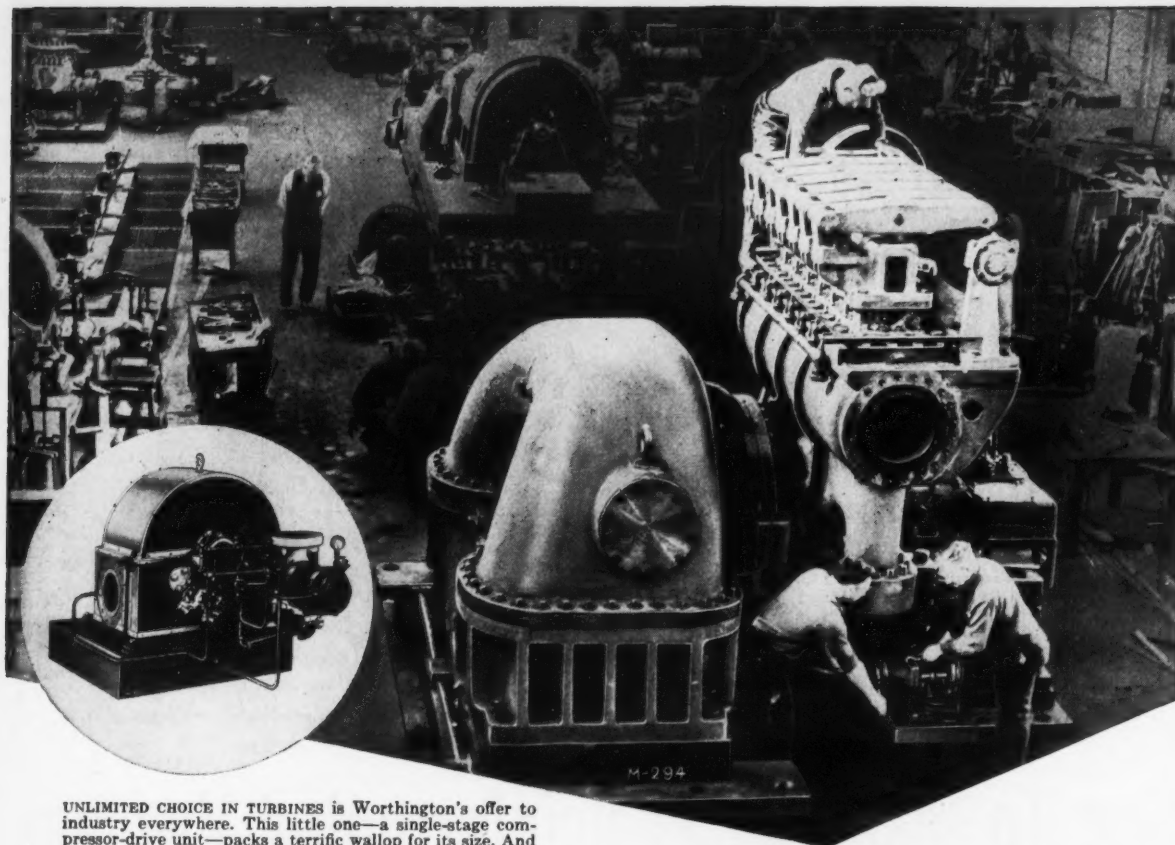


STEAM POWER DIVISION

X.1.2



When inquiring check CP 2982 on handy form, pgs. 2-3



UNLIMITED CHOICE IN TURBINES is Worthington's offer to industry everywhere. This little one—a single-stage compressor-drive unit—packs a terrific wallop for its size. And that multi-stage 24,000-hp compressor-drive giant is one of the largest ever built for this type of service.

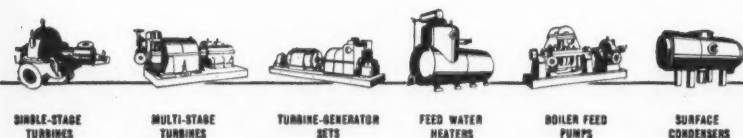
Single-stage midgets to multi-stage giants

Whether your turbine requirements call for the biggest or the smallest—straight condensing . . . straight non-condensing . . . extraction . . . mixed pressure extraction . . . low pressure . . . high back pressure . . . for mechanical or generator drive . . . with governors for constant or variable speed—*Worthington has an answer.*

Each Worthington turbine is designed to make the steam do *more* work, so you save power and money throughout its long life.

Learn more about Worthington turbines. Get the facts on why *there's more worth in Worthington* by writing to Worthington Corporation, formerly Worthington Pump and Machinery Corporation, Steam Turbine Division, Wellsville, N. Y.

T.2.2



A GREAT TEAM IN STEAM

WORTHINGTON

Steam Turbines

When inquiring check CP 2983 on handy form, pgs. 2-3

IDEAS

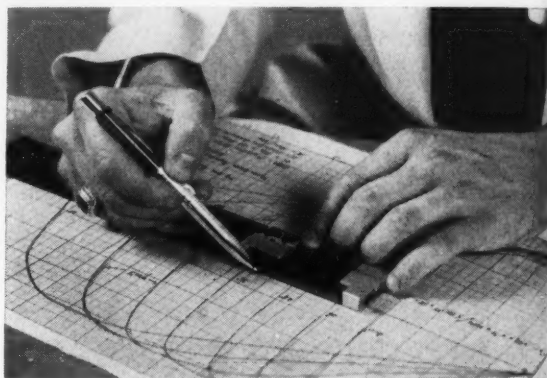
Here's that "rubber ruler" for plotting, figuring with odd scales . . .

looks like a sliderule; has evenly divided scale that stretches or shrinks uniformly.

The "rubber ruler" may have belonged in the same category with the left-handed monkey wrench, but now it is a practical reality. Scale is quickly adjustable and may be accurately set for values between 10 divisions per inch and 100 divisions per inch. Maximum usable scale length is ten inches.

Variable Scale is built like a sliderule. An extremely accurate triangular-coil spring is fastened at one end to the aluminum base and at the other end to a slide. Slide is held in position by means of an adjustable pressure friction plug which keeps it centered on the body. Two scales on the body read 1) divisions per inch and 2) scale length (length per 100 divisions). For any location of the slide, both these readings are immediately given.

Providing reasonable accuracy, scale can aid in those jobs which are unusually annoying — data reduction, multiply.



Scale is set to match graph, used to read it directly

ing graphs and curves by constants, dividing a distance into any number of equal spaces or logarithmically proportional lengths, reading, plotting or interpolating curves linearly or logarithmically, reading any drawing (or even photograph) to any scale.

(Variable Scale is a development of The Gerber Scientific Instrument Co., Dept. CP, 89 Spruce St., Hartford 1, Conn. . . . or for more information check CP 2984 on handy form, pages 2 and 3.)

Predicts hardenability of steel on the basis of factors for alloying elements . . .

patent has been made public, is expected to conserve alloying elements in short supply

In a patent issued July 3, 1951 to Dr. Marcus A. Grossmann of United States Steel, he set forth definite hardenability factors for elements used in alloy steels. The patent, since made public property, specifically covers carbon, manganese, molybdenum, chromium, nickel, and other elements. While the general hardening tendencies of these elements have long been known, use of definite hardenability factors makes it possible to predict characteristics of hypothetical alloy steels.

Since many alloying elements normally used for special steels are now in short supply and others would be short if war blocked world sea lanes, this new method will be

CHEMICAL PROCESSING

of great assistance in making maximum use of existing supplies of the elements. The method could also be utilized for the evaluation of substitute elements which might give the same service.

(Courtesy of United States Steel Co., Dept. CP, 208 S. La Salle St., Chicago 90, Ill.)

Fleet of trucks provide valve lubrication service for large plants . . .

high pressure equipment in each unit delivers 180 lb of lubricant per hour

A valve lubrication service organized to serve the chemical and petroleum industries has been recently introduced. Proper lubrication and adjustment of all valves on the customer's property is accomplished with specially designed



Mobile unit services tank battery

trucks. Each vehicle has all tools and fittings for servicing of valves and is manned by a trained crew. Equipment is included which can deliver 180 lb of lubricant per hour, a time saving feature for large valves.

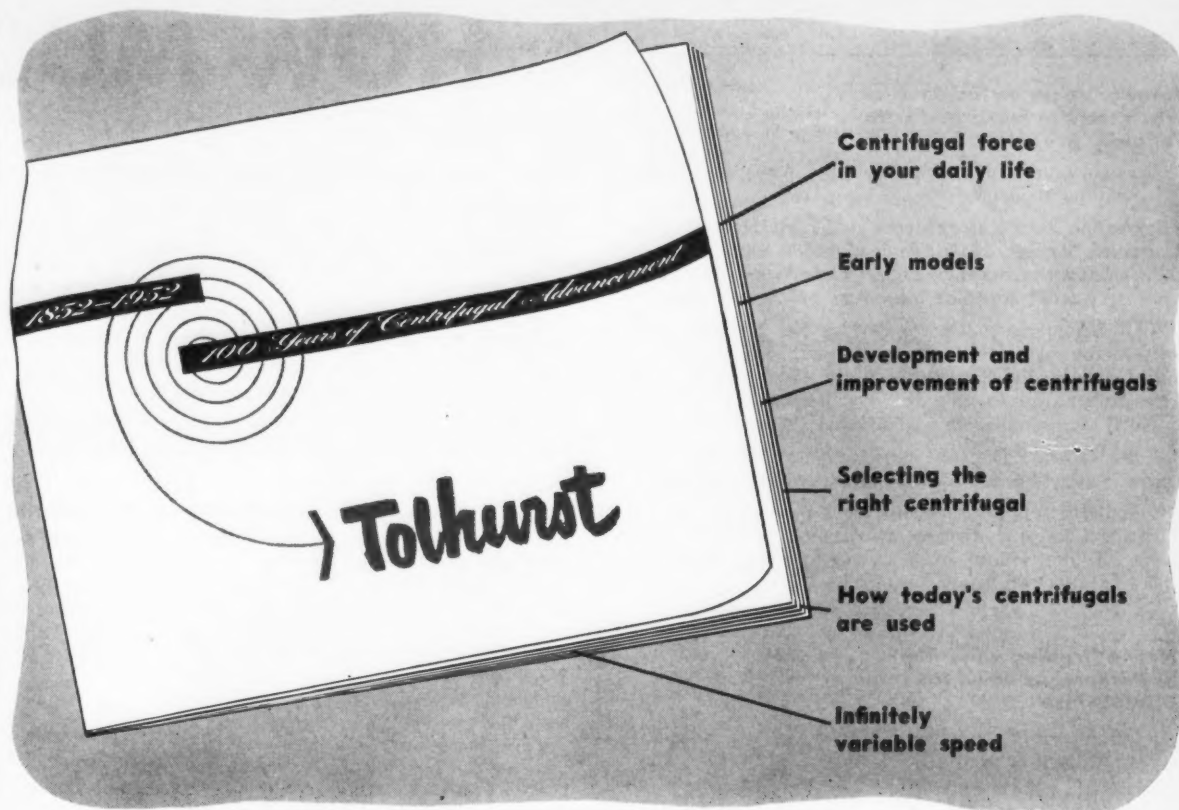
Customer is supplied with a schedule of valves serviced each time a plant is covered by a crew. Contract does not include repair work. However, the record lists valves needing repairs or replacement. A warning tag is attached to any in this category. A dated tag is attached to each valve after lubrication.

(Offered by Desco Service Company, Dept. CP, 804 Louisiana Ave., Shreveport, La.)

Cuts engines wear from standpoint of fouling and corrosion

Shell Oil Company is now marketing a lubricating oil — called Rimula — containing a combination of new additives which is designed to substantially extend the serviceable life of automotive type diesel engines, as well as certain gasoline engines operating in low temperature, stop-and-go service. Laboratory and field tests reveal that this oil cuts down engine wear from corrosion and fouling, with consequent reduction in oil consumption and frequency of overhauls.

(Information courtesy of the Shell Oil Company, Dept. CP, 50 W. 50th Street, New York, N. Y. . . . or for more information check CP 2985 on handy form, pages 2 and 3.)



Our First 100 Years Were the Hardest

IN 1852 eight years before Lincoln was elected president, Tolhurst Machine Works was founded in Troy, N. Y. Judged by today's standards, early centrifugals were crudely constructed and excessive vibration was a serious problem. When our catalog for 1885 described the new Tolhurst Self-Balancing Centrifugal as one "which will not jar the building," this development was hailed as a remarkable achievement.

In the hundred years since 1852, Tolhurst has met many problems and learned quite a little about designing and building centrifugals for American

industry. If YOUR plant has a problem that involves filtering, draining, dehydrating, thickening or separating, perhaps we can help you handle it better and more economically by utilizing centrifugal force. Our experience is at your service without cost or obligation.

Highlights of Tolhurst's first hundred years have been compiled into a brochure for your library, colorfully illustrated with sketches of early events and machines as well as modern installations. To receive your complimentary copy, fill in the coupon below.



Tolhurst
CENTRIFUGALS DIVISION
AMERICAN MACHINE AND METALS, INC.
EAST MOLINE, ILLINOIS

-----Send for Your Copy Today!-----

TOLHURST CENTRIFUGALS DIVISION
American Machine and Metals, Inc. Dept. CP-652
East Moline, Illinois

- ☐ Send me a copy of the Tolhurst anniversary brochure.
☐ Have your representative call on me.

Company name _____
Address _____
City & Zone _____ State _____
Sender's name _____

When inquiring check CP 2986 on handy form, pgs. 2-3

Furnace doors no longer stick when they're lubricated with colloidal graphite . . .

production in high-temperature furnaces speeded, cost-shutdowns reduced

High-temperature furnace doors at the LR Heat Treating Company, Newark, N. J., frequently stuck when they were lubricated with conventional petroleum-based lubricants. Sticking was accompanied by serious production delays.

A colloidal graphite dispersion—Dag No. 154—was substituted for the lubricant formerly used. Dag has exceptional resistance to high temperatures. The company now reports that their furnace doors no longer stick and have speeded their production and reduced shutdown costs.

LR is also using Dag for lubricating its soldering equipment, in fact, they are using it wherever they possibly can.

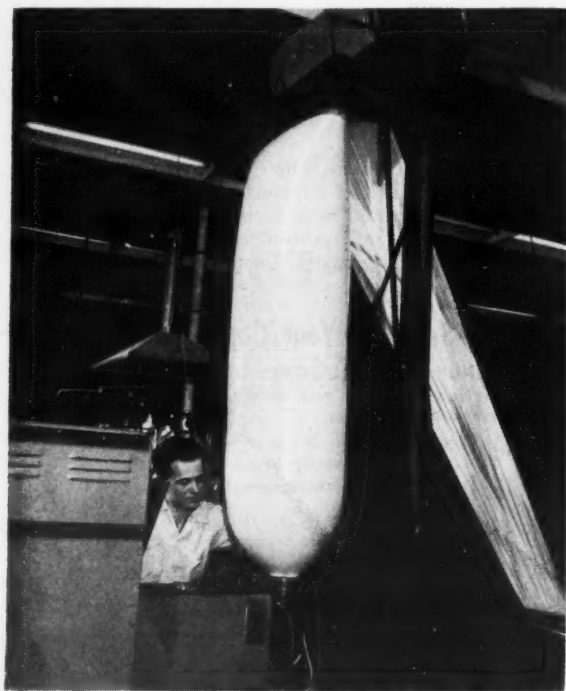
(Colloidal graphite dispersions are a product of Acheson Colloids Company, division of Acheson Industries, Inc., Dept. CP, Port Huron, Mich. . . or for more information check CP 2987 on handy form, pages 2 and 3.)

Now extruding vinyl film in thicknesses down to 0.0003-inch . . .

the secret is a trapped air pocket which inflates tube as it is extruded

A process called "blow extrusion" is now making possible transparent and colored vinyl films as thin as three ten thousandths of an inch. Film itself is based on Marvinol VR-10 resin and is extruded through an annular die at temperatures between 375 and 425°F. Yield at this minimum thickness is fifty square yards per pound.

Strong and durable, the film also has excellent clarity and good insulating properties. Colors are bright and



Extrusion of film in progress

HOW MUCH DO FILTERS

Have you ever thoroughly investigated both the direct and indirect cost of filter cloths in your plant? If not, the chances are you will be surprised to find that annual cloth replacement and maintenance cost alone runs from \$1.00 to \$4.00 per square foot of press area per year, depending on the utilization of your press, the product and the type of fabric you use.

Other costs associated with use of cloths, such as the labor for scraping, handling, washing; breaking and redressing the press; and purchasing time expended in obtaining the cloth you need when you need it will probably be even greater, even if not as easily pinned down.

Here then are three immediate reasons why you should consider switching to modern high-speed Niagara pressure leaf filters:

1. Niagara filters require no filter cloths. Accurate case histories in our files show that some plants amortize their Niagara filters in a few years on this saving alone.

2. Niagara filters require less labor. When you eliminate filter cloths, you eliminate the back-breaking and costly labor that goes with them. With Niagaras you get a quick, easy, clean operation that takes only a few minutes for one man between cycles.

3. Niagara filters work harder for you. Reduced downtime means more production time and therefore higher production at your filter station. The filter works for you more hours per day—gives you many more gallons throughput with less installed filter area.

By switching to Niagaras, many press users have realized over-all savings that amortize the cost of the

new filters in months.

Entirely aside from savings, here are nine sound reasons for installing Niagara Filters:

1. Higher flow rates on an equal area basis. Niagaras normally give flow rates 2 to 5 times those of conventional cloth-covered filter presses. This is because the rigid metal screens do not "give" under pressure—cannot obstruct flow channels in the drainage member as does sagging fabric cloth.

2. Sparkling filtrate clarity. Positive removal of solids to practically any degree of clarity you desire. In sanitary applications, 0-0 bacteria count can usually be secured in one filtration.

3. No leakage. Fully enclosed, pressure-tight construction eliminates drippage and fumes. Ideal for handling flammable, explosive, toxic, volatile, or highly obnoxious liquids.

4. Excellent cake-washing characteristics. Nearly true displacement washing is obtainable. Wash liquid is a minimum.

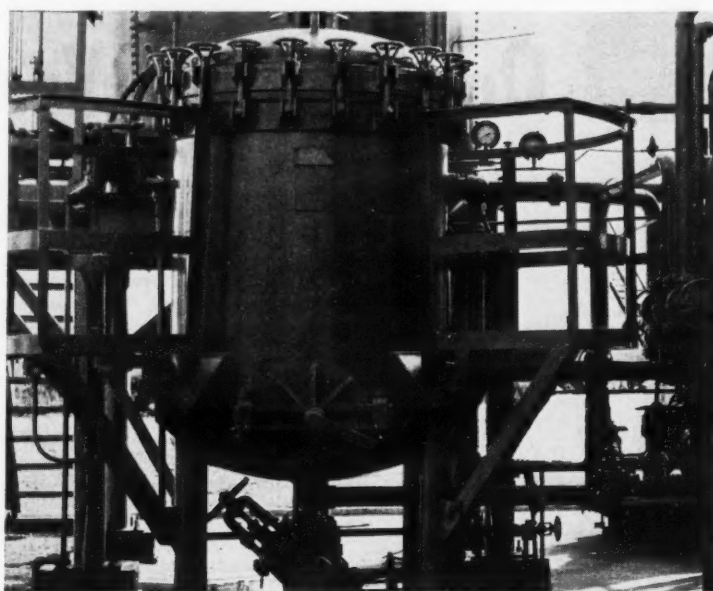
5. One-man operation and cleaning. Single or multiple units can be operated and cleaned easily by one man. The entire leaf battery is accessible for easy cleaning.

6. Corrosion resistance. The pressure leaf filter can more cheaply and readily be constructed of stainless steel, nickel, monel and other corrosion-resistant materials.

7. Jacketed construction. Niagaras can readily be supplied with steam jackets or special insulation.

8. Wide capacity range. Sizes range from 20 to 950 square feet of filter area, with average capacity of 10 to 425 G.P.M. in one compact unit. (Even larger areas are available in the new horizontal filter shown at right on the opposite page.)

9. Lower maintenance cost. There are no moving parts during filtration. Simple construction, with fewer parts to wear out, means low-cost upkeep.

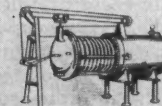


THIS NIAGARA FILTER, in large petrochemical plant, removes iron sulfide particles from solutizer solution.



Niagara Filter
CORPORATION

IN EUROPE—NIAGARA FILTERS EUROPE, 36 Leidsegracht, Amsterdam-C, Holland



HORIZONTAL
for non-aqueous
liquids; high
solids; cake re-
covery.

CLOTHS COST YOU?

NEW NIAGARA STYLE H* FILTER

Low cleaning time . . . no cloth cost

This new Niagara filter answers the need for a filter which can quickly discharge large quantities of semi-dry cakes. A variation of the standard Niagara design, it still retains all the basic advantages of Niagara vertical pressure leaf filters.

A retractable carriage permits all leaves to be withdrawn at once for rapid cleaning. One man can easily discharge as much as 150 cu. ft. of semi-dry cake in a matter of minutes merely by rapping the leaves.

A new closure design, the Q/O*

(quick-opening) cover, permits faster, easier opening and closing than ever before in a filter of this size.

The Style H filter, available in sizes up to 1500 sq. ft., is ideal for filtration where high percentages of solids must be removed or where solids must be recovered. It is also recommended for standard liquid clarification where low headroom or other special reasons make its horizontal construction preferable to a vertical filter.

*Trade Mark Patent Applied For.

HOW THE NIAGARA FILTER WORKS

The leaves, which are the heart of the filter, consist of double-faced screen assemblies bounded by a tubular drainage frame leading to an outlet nozzle.

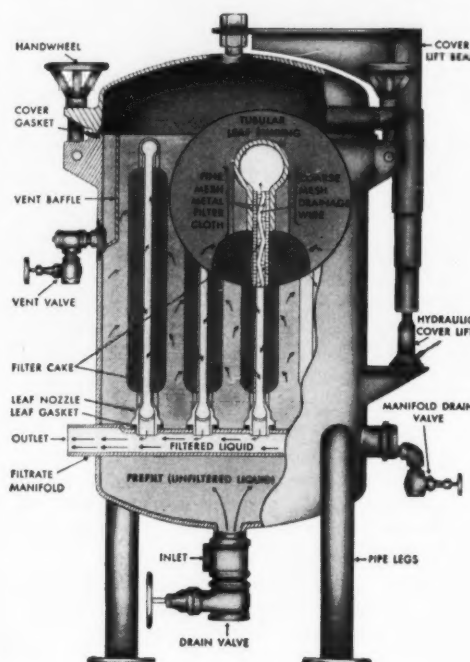
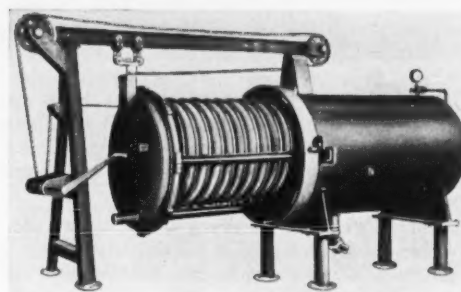
The unfiltered liquid usually with filteraid in suspension is pumped into the closed pressure filter tank in which the leaves are placed, and is forced through the fine-mesh screens, on which the filter cake is formed by the solids in the liquid.

Only the clear liquid reaches the inside of the leaves, flowing through the coarse center drainage wire to the tubular frames, and out through the

leaf nozzles to the manifold.

When the batch has been completely filtered, or when the cake has nearly filled the space between the leaves, the filter is emptied and the filter cake is sluiced from the leaves with a hose or with automatic high-pressure sprays. Sluicing is done without removing any parts from the filter. (Cake removal for the Style H filter is somewhat different, as described above.)

As a rule, the filter is ready to go to work again in 15 minutes to one hour, depending on its size.



Operating figures prove the economic soundness of replacing cloth-covered presses with Niagara filters. For details, write us today. Or mail the coupon for descriptive literature.

THESE 5 SERVICES HELP MAKE HIGH-SPEED, LOW-COST FILTRATION A REALITY IN YOUR PLANT:

- 1. Nationwide field service.** Niagara representatives in 24 cities know filtration and can give you facts.
- 2. Modern filtration laboratory** determines your requirements accurately by test-filtering samples of your materials.
- 3. Pilot filter rental plan** enables you to "preview" Niagara performance in your plant, at low cost.
- 4. Custom engineering.** A single filter or a complete system, designed for your needs and built in materials of your choice.
- 5. Installation and start-up** are supervised by Niagara factory engineers, always on call.



PILOT FILTER duplicates operation of large production models.



STANDARD VERTICAL — for clarification and "polishing".



"AUTO-SLUICE" for fully automatic cake sluicing.

NIAGARA FILTER CORP., 3083 Main St., Buffalo 14, N. Y.

Please send: ☐ General literature; ☐ Data on horizontal filters; ☐ Data on pilot filter rental

Name _____

Title _____

Company _____

Address _____

City _____ Zone _____ State _____

IDEAS

a wide variety of them are available. It can also be given a soft flexible feel, or produced stiff and paper-like. In test runs, a 1½-inch extruder equipped with a 4-inch die film head was used. Temperature of the die face at start of the run was between 335 and 350°F. This rose to 395 to 425 during the run itself. As the tube of hot film emerged, it was expanded by pressure of the trapped air pocket. Take-up, through the flattening rolls above, insured enough pressure to do this. Air to form the pocket was admitted through a valve in the extruder itself. Gauge of the film was controlled through the speed of take-up.

Equipment needed for this type of operation is: 1) pre-mixer for preparation of feed to the extruder, 2) extruder equipped with a film-blowing head, 3) take-up rolls for winding tube, 4) die dismantling equipment.

Physical properties of a typical film (100 parts resin, 30 parts dioctyl phthalate) for two thicknesses are shown in table.

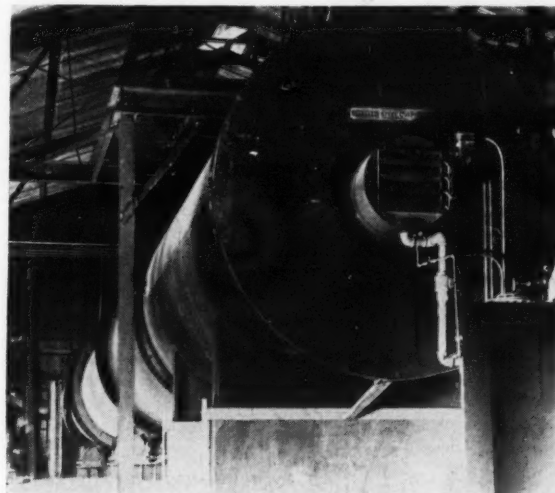
Film thickness, mil	2.0	0.3
tensile, psi	4600	3300
elongation, %	220	100
100% modulus	3100	3300
Elmendorf tear, psi	—	—
with grain	340	530
across grain	670	940

(Information furnished by Naugatuck Chemical Division, United States Rubber Company, Dept. CP, Rockefeller Center, New York 20, N. Y.)

Processing of bentonite clay is speeded through use of 60' dryer . . .

among the largest of its type, rotary device reduces free moisture content from 20 to 10%

One of the largest rotary dryers in the northwest, 60' long, 8' in diam. is now in operation at Magnet Cove Barium Corp., Graybull, Wyo., for processing bentonite



60' long and 8' in diam. dryer extracts excess water from bentonite clay

clay used in oil well drilling mud. The dryer, of the direct-heat parallel-current type, reduces the free moisture content of the clay from 20 to 10 per cent.

(Rotary dryer is built by Standard Steel Corporation, Dept. CP, Los Angeles, Calif.)

When inquiring check CP 2988 on handy form, pgs. 2-3

NEW! HEAVY DUTY CHELSEA FANS

POWER LINE
FANS

-for industrial applications
DIRECT DRIVE OR BELT DRIVE
NON-OVERLOADING PROPELLERS



SOLVE YOUR VENTILATING PROBLEMS

with Chelsea's new heavy duty airfoil type exhaust fans. For use in exhausting, duct work, filter installations, range or vat hoods, penthouse units, paint spray booths, where static pressures are encountered.

WRITE FOR NEW CHELSEA CATALOG No. 400

including detailed information on type, size, specifications, engineering data and installation recommendations. 30 types and over 200 sizes. Please address requests to Dept. K-6

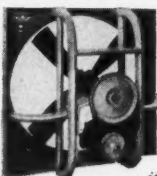
FOR FACTORIES, FOUNDRIES, MINES, MILLS — totally enclosed ball-bearing motors —



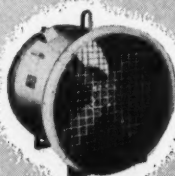
● TYPE PLF POWER LINE
DIRECT DRIVE — 16" to 48"
in all H.P. ratings. Square
frames for easy installation.



● TYPE PLDX POWER LINE
DUCT BOOSTER—Motor ex-
ternal to Air Stream. 16" to
48" in all H.P. ratings.



● TYPE PLB POWER LINE
BELT DRIVE — 24" to 48"
in all H.P. ratings. Square
frames for easy installation.



● TYPE PLDU POWER LINE
AIR BLASTER—For spot cool-
ing — available on pedestal,
18" to 42" in all H.P. ratings.



PROPER VENTILATION
IS AN INVESTMENT!
Look for this Symbol of Quality . . .
Look for this Seal of Certified Ratings



CHELSEA FAN & BLOWER CO., Inc.
PLAINFIELD, NEW JERSEY

IDEAS

Conforming to body contours is simple problem for flexible bandage . . .

chemically-treated cotton yarn is self-fitting, self-tightening without restricting movement

A new type of cotton bandage which adapts readily to irregular contours of the body has been developed by the USDA Southern Regional Research Laboratory. The new bandage, now being made commercially for the armed forces, may soon be available for civilian use.

Special conformity of the material is gained by means of a simple chemical treatment which allows ordinary open-weave gauze to shrink freely and completely in a caustic soda solution of about 20-30 percent concentration. After washing out the caustic and neutralizing with a dilute acid, the gauze is thoroughly washed and then dried with a minimum of tension.

In shrinking, the yarns develop a high degree of crimp and kinkiness. The resultant elasticity in both directions is sufficient to make the modified gauze essentially self-fitting and self-tightening, thus conforming to body contours without restricting circulation or freedom of movement.

(Information supplied by USDA Agricultural Research Administration, Washington 25, D. C.)

Disclose role of cerium, magnesium, and other additives in cast iron . . .

NBS study gives additional information on effects of elements in formation of nodular graphite

A recent study by Alexander I. Krynsky and Harry Stern of the National Bureau of Standards adds considerable information on the effects of different additives in the formation of nodular graphite. Because of its ductility and superior strength, nodular cast iron (having a nodular graphite structure) has been given considerable attention since its production was first described in 1948.

Both cerium and magnesium, added in small amounts to the molten iron, have been used successfully to produce ductile cast iron. The cerium process was reported in 1948 by H. Morrogh and W. J. Williams, while in 1949 the International Nickel Company was granted patents for the magnesium method.

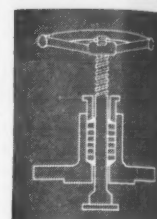
Additives investigated at NBS were magnesite, iron sulfide, calcium, nickel-chromium-molybdenum, and boron. Cerium was not included, because published information on its application as a nodulizing agent was relatively complete when the study was begun. Besides the different additives, the investigation included such variables as composition, melting and pouring temperatures, and cooling rate.

In the NBS study, completely nodular graphite was obtained only in iron containing magnesium in excess of 0.03 per cent. Two types of nodules were observed: radial and structureless — the structureless types frequently having a crystalline core. Results with magnesite, magnesia, and other additives were essentially negative.

However, irregular patches of graphite, not true nodules were observed in iron treated with magnesia, iron sulfide, and boron. Only a few nodules were observed in calcium-treated specimens, but this was probably because of the rather small amount of calcium retained. Other investigators have reported 100 per cent nodular graphite structures

Pump packing made of Du Pont "TEFLON" saves manufacturer \$1,450 in 30 months

Here is a typical case history of "Teflon" in process equipment. Consider how this plastic can save money and do a better job for you.



CONDITIONS: centrifugal pump with 1 7/16" shaft, handling chlorinated benzol at 1,700 rpm.

CONVENTIONAL PACKING	"TEFLON"
cost per unit \$3.20	\$31.20
service life 1/2 week	30 months
packing cost per month \$25.60	\$1.04
labor cost per month \$24.00	\$1.10
total cost per month \$49.60	\$1.14
cost for 30 months \$1,488.00	\$34.20
SAVINGS	\$1,450.00

The Du Pont Polychemicals Department supplies "Teflon" in the forms of molding powder and aqueous dispersions. We'll gladly suggest names of molders and fabricators of sheets, rods, tubes, and finished parts. For full information, write: E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Department; District Offices: 350 Fifth Avenue, New York 1, N. Y.; 7 S. Dearborn Street, Chicago 3, Ill.; 845 E. 60th Street, Los Angeles 1, Calif.



150th Anniversary
BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY

*Trademark for Du Pont
tetrafluoroethylene resin

When inquiring check CP 2990 on handy form, pgs. 24



A "PACKAGE UNIT" DEMINERALIZER

A self-contained demineralizer, complete with reaction tanks, chemical tanks, special piping and all necessary accessories. Only ordinary piping and electrical connections are required to complete installation. Operator can perform all operations and observe all results from a position in front of panel and chemical tanks are also charged from this position. All control valves and instruments are at eye-level. For details write COCHRANE CORPORATION, 3147 N. 17th St., Philadelphia 32, Pa.

COCHRANE

When inquiring check CP 2991 on handy form, pgs. 24

CHEMICAL PROCESSING

When inquiring check CP 2989 on handy form, pgs. 2-3

in irons having calcium contents higher than were obtained in this investigation.

The experimental method involved melting cast irons of various compositions in a high-frequency induction furnace. After the melt reached the desired temperature, the nodulizing agent under study was added. In general, the melt was next inoculated with 0.4 per cent silicon and then cast in round bars. These were examined chemically, spectro-chemically, photomicrographically, and for hardness.

Initial experiments with magnesium as the nodulizing agent used commercially pure magnesium. However, the violence of the reaction between pure magnesium and molten cast iron made close control of these early melts difficult. This method of addition was therefore abandoned, and the magnesium was supplied in the form of 80 Cu-20 Mg alloy.

The effect of cooling rate on microstructure was determined by casting wedge-shaped bars. Cooling rate, greatest near the apex of the wedge, was observed at intervals along the bar by means of thermocouples.

Rapid cooling favored nodule formation, but the effect of the cooling rate decreased with increase in magnesium content. No relation between nodule formation and pouring temperature or maximum heating temperature was observed. Results of the investigation support the belief that nodular graphite is formed in the melt during solidification, and that patches of graphite are produced after solidification by decomposition by carbides.

(Information supplied by National Bureau of Standards, U.S. Dept. of Commerce, Washington 25, D.C.)

June 30 is a critical date for users of dielectric heating devices . . .

FCC ruling requires all such equipment made or installed before July 1, 1947 to be certified

Users of dielectric and induction heating equipment manufactured or installed prior to July 1, 1947 must have that equipment certified by June 30 of this year if they have not already done so according to Federal Communications Commission Rules and Regulations (Part 18).

Specifically, the rule is aimed at cutting down high frequency interference with television. It was instated in 1947, but five years were allowed for users to comply. Consulting engineers or equipment manufacturers can guide users in taking the proper steps. A complete copy of the rule and certification requirements can be obtained from the Government Printing Office in Washington.

(National Electrical Manufacturers Association, Dept. CP, 155 E. 44th St., New York, N. Y.)

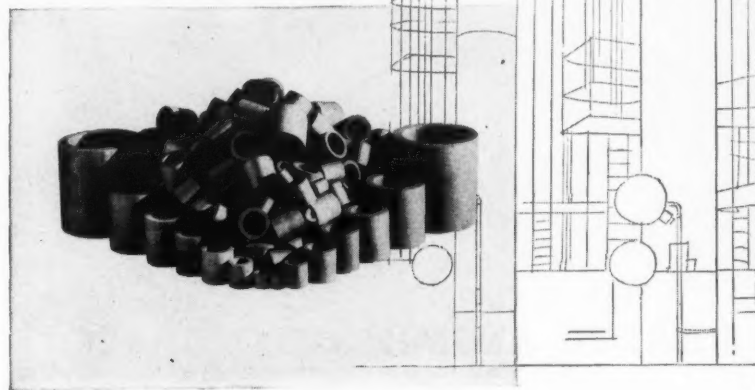
Case histories confirm value of electron microscopes

Two-color booklet presents ten case histories to illustrate industrial application of electron microscope. Instrument has been used in solving everyday problems of quality control and product improvement as well as in development of new products in industrial laboratories. Booklet emphasizes only typical applications of electron microscope in fields of chemical processing, petroleum, metal fabrication, rubber, drug, textile, and electricity. Description is supplemented with several illustrations.

Form 2R8195 is issued by Scientific Instrument Section, RCA Victor Division, Dept. CP, Camden 2, N. J. When inquiring specify CP 2992 on handy form, pages 2 and 3.

For low-cost, trouble-free service in ALL types of tower construction

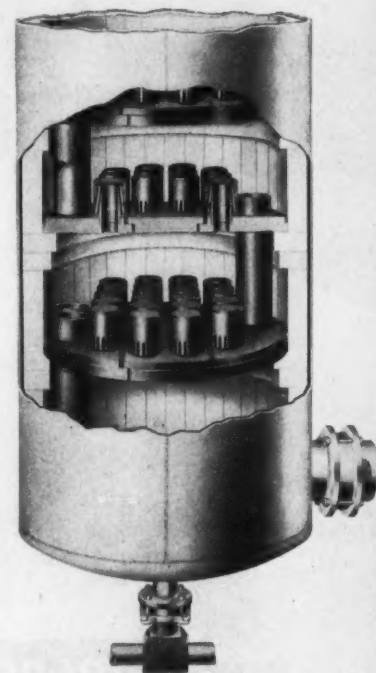
FIT THEM...



and PACK THEM...

"NATIONAL" Graphite Bubble Caps resist attack by practically all chemicals, INCLUDING ALTERNATING ACIDIC AND ALKALINE CONDITIONS. Of one-piece construction, threaded directly into graphite or "Karbate" Impervious Graphite Trays, they are low in cost and function with low pressure drop. Tapered slots provide an effective weir action. Other "National" and "Karbate" tower fittings include distributors and drip-chimneys, support grills, checkerwork and brick and tile shapes of all kinds.

"NATIONAL" Carbon Raschig Rings are immune to acid, alkali, and solvent action; have extremely low coefficient of thermal expansion; are light-weight and strongly resistant to chipping and spalling. They have a very attractive overall cost and long service-life. Eight sizes range from 1/4" to 3" O.D. Very popular in reaction and scrubbing towers used by the chemical, petroleum and petro-chemical and processing industries.



with NATIONAL CARBON AND GRAPHITE AND "KARBATE" IMPERVIOUS GRAPHITE TOWER ACCESSORIES



Low light bills...

... mark phenomenal acceptance of the "EVEREADY" No. 1050 Industrial Flashlight Battery by a broad cross-section of industry. Delivering twice the usable light of any battery we've ever made before, it will not swell, stick, or jam in the flashlight... has no metal can to leak or corrode.

OTHER NATIONAL CARBON PRODUCTS

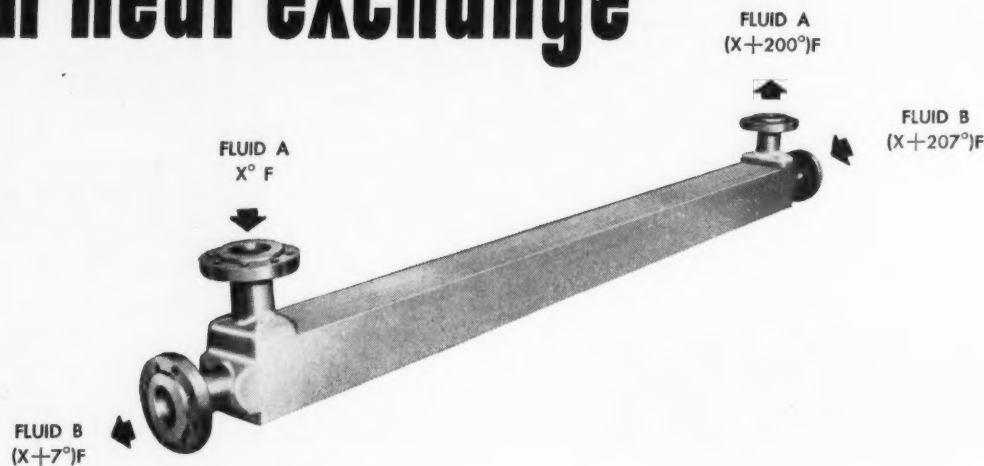
HEAT EXCHANGERS • PUMPS • VALVES • PIPING • TOWERS • TOWER PACKING • BUBBLE CAPS • BRICK • STRUCTURAL CARBON • SULPHURIC ACID CUTTERS • HYDROCHLORIC ACID ABSORBERS

The terms "National", "Karbate" and "Eveready" are registered trade-marks of Union Carbide and Carbon Corporation

NATIONAL CARBON COMPANY
A Division of Union Carbide and Carbon Corporation
30 East 42nd Street, New York 17, N. Y.

District Sales Offices: Atlanta, Chicago, Dallas, Kansas City, New York, Pittsburgh, San Francisco
IN CANADA:
National Carbon Limited, Montreal, Toronto, Winnipeg

Now... closer temperature approaches in heat exchange



WITH **TRANE** BRAZED ALUMINUM SURFACE

Now . . . even with a large temperature change or drop . . . you can obtain *temperature approaches* of 5° to 10° F.

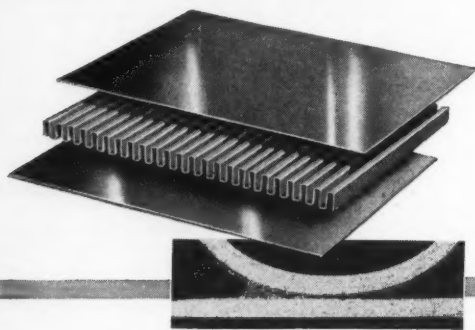
TRANE Brazed Aluminum heat exchange surface makes it not only possible—but *practical!* That's because the new TRANE Brazed Aluminum packs up to 450 square feet of surface into a single cubic foot of space.

This huge amount of surface in a single unit makes maximum use of available pressure drop. And you don't lose pressure through connections.

TRANE Brazed Aluminum can handle heat transfer between three, four, five or more streams simultaneously—liquid to liquid, liquid to gas, or gas to gas. Temperatures from 500° F. to -300° F. Tested at pressures up to 1000 Psig.

Want more information? Contact your nearest TRANE sales office, or write The TRANE Company, LaCrosse, Wis.

WHAT IS BRAZED ALUMINUM? A stack of flat plates and corrugated fins in layers, all brazed in perfect bond. Strong, light, compact and completely flexible. Illustration below shows strong fillet formed between fin and plate.



MANUFACTURING ENGINEERS OF HEATING, VENTILATING,
AIR CONDITIONING AND HEAT TRANSFER EQUIPMENT

TRANE

THE TRANE COMPANY, LA CROSSE, WIS.
Eastern Mfg. Division, Scranton, Pa.
Trane Company of Canada, Ltd., Toronto
Offices in 80 U.S. and 14 Canadian Cities

When inquiring check CP 2994 on handy form, pgs. 2-3

IDEAS

Progress report on standards for plastic film, sheeting and coated fabrics . . .

activities of various technical groups which have been working since June 12, 1946

At a recent meeting of the Vinyl Plastic Film Division of The Society of the Plastics Industry, Inc., a progress report was made concerning the development of quality standards for plastic film, sheeting and coated fabrics.

Eleven technical groups have been working since June 12, 1946, under the jurisdiction of the S. P. I. with breakdown of responsibilities based on properties relative to vinyl film and sheeting. Those various properties which were more or less in the same category were set up as the basis for the work to be performed by an individual group.

Results of Group I activities—low-temperature flexibility and cold crack, pliability, fatigue, and crease resistance—disclosed the development of an original inexpensive impact-type cold test which is applicable to both vinyl film and sheeting. Also, it was anticipated that a test method for low-temperature flexibility would soon evolve.

An extreme amount of work by Group II—abrasion resistance, tear resistance, tensile strength, hardness, and burst—was carried out on abrasion resistance. However, it was decided that this property was not of interest and that it did not lend itself to inclusion in a purchase specification. Bursting strength was extensively investigated and an early report from the people concerned was expected. At this reporting, no positive specifications for any of the properties in Group III—accelerated aging, light fastness, and resistance to weathering—emerged.

Group IV—plasticizer migration, volatilization and extraction, color transfer, cleaning methods, and stain resistance—limited its activities to those properties which could be included in a specification. Testing methods for plasticizer volatility, water extraction, soapy water extraction, and crocking have been developed, and some of them are in the process of standardization within the ASTM.

No standard methods of test developed within Group V—resistance to mildew, resistance to insects and rodents, toxicity, odor and taste, and resistance to perspiration—but work is continuing. Group VI—block, adhesion, surface slip, adhesion to printing inks, seam strength, and hydrostatic pressure—recommended that the standard ASTM test for blocking be used for specification purposes, if so desired. Other properties were still under investigation.

In Group VII—flammability and ignition, and water-vapor and gas transmission resistance—a flammability tester, which is principally applicable to nonrigid vinyl film and has already received broad industry acceptance, was announced. Assignment of Group VIII—dimensional stability—was completed with a test method for the measurement of shrinkage at elevated temperatures. This test is now being standardized by ASTM.

It was reported that with respect to Group IX activities—electrical properties—a decision had been made to relegate development of tests to other standardization agencies. Activities of Group X—nomenclature—have been largely devoted to gathering information from other standards' agencies and assisting in the industry-wide adaptation of standard nomenclature.

Considerable progress was made by Group XI—heat sealing—but no definite method or test equipment have been developed as yet.

(From The Society of the Plastics Industry, Inc., Dept. CP, 67 West 44th St., New York 18, N. Y.)

CHEMICAL PROCESSING

IDEAS

Checks air content of concrete, might well serve on many other materials . . .

measured contraction, known pressure indicates gas contained

An ASTM tentative method for measuring per cent air entrained in freshly mixed concrete may be the solution to problems of measuring gas content or entrained air content of pastes and slurries. Basically, technique calls for putting sample under an accurately measured pressure; reading shrinkage in volume.

In order to do this material is placed in a cast magnesium alloy pot which holds almost a quarter of a cubic foot. Gasketed cover, which locks on, carries a calibrated vertical glass tube, an accurate pressure gage, and a connection for a small hand air pump.

When the calibrated glass and the entire space of the upper section is filled with water, the pump is connected. Applied air pressure then forces water level down in the glass tube so that it is possible to make level readings at various pressures.

Since it was developed specifically for concrete, range of the tester is 0 to 9 per cent entrainment. (Usual range for concrete: 3 to 6 per cent air.) Parts included with standard unit are: a liquid measure, cleaning brush for glass tube, clamp and strike-off bar for pot, hand pump, and various other implements besides the pot, glass tube, pressure gage, and top.

(Further information is available from Central Scientific Company, Dept. CP, 1700 Irving Park Rd., Chicago 13, Ill.)

High vacuums assist titanium production

In melting of sponge titanium at an eastern chemical company, all work is done under vacuum (absolute pressure of less than 10 microns) because of the metal's affinity for gases. The titanium properties would be altered drastically if this were not done. The presence of sludge further complicates the problem.

Company is using lubricated-type Nordstrom standard semi-steel plug valves in this vacuum service.

(Nordstrom Valve Div., Rockwell Manufacturing Company, Dept. CP, 398 Lexington Ave., Pittsburgh 8, Pennsylvania.)

For more information on product at right, specify CP 2995 . . . see information request blank between pages 2-3. ➡

Colorful asphalt floor tile mix uniformly produced in BAKER PERKINS mixers



B-P Mixers are doing a splendid job in all sorts of processing operations, and this installation of six size 15JSE BAKER PERKINS Mixers at a large asphalt floor tile plant is an excellent example. These six mixers can thoroughly blend the ingredients for asphalt floor tile at the rate of 18,000 lbs. per hour on a continuous production schedule. Like other BAKER PERKINS equipment, the cost of operating and maintenance, including labor, material handling, power, and depreciation, are down where they should be. BAKER PERKINS equipment can help cut costs, increase production, and improve the quality of your product, too. Consult a B-P sales engineer or write us today.

BAKER PERKINS INC.
CHEMICAL MACHINERY DIVISION
SAGINAW, MICHIGAN

IDEAS

Develop an effective and suitable substitute for blood plasma . . .

sugar is principal raw material for product

A radically new fluid found to be an effective and suitable substitute for human blood plasma was announced recently by R. K. Laros Co. of Bethlehem, Pa. The new substitute was developed by Commonwealth Engineering Co., of Dayton, Ohio after some 12 years of research. Commonwealth is now engaged in setting up a pilot plant that will be in operation within a few months. It will also erect production facilities for Laros at Bethlehem.

Known as Plavolex, the product uses sugar as its principal raw material. Action of a bacteria — leuconostoc Mesenteroids NRRL B-512 — on sugar produces dextran. Then, under carefully controlled conditions, including precipitation, filtration, redissolution, molecular splitting, fractionation, purification, and drying, a white powdery substance is produced. This is then dissolved in a normal medical 9 per cent saline solution, sterilized, and capped. The cap includes a hypodermic needle.

The liquid is clear, colorless and slightly heavier than water. It is administered intravenously as is plasma, and the solution is stated to keep indefinitely without refrigeration.

Plavolex has been clinically tested in hospitals and other sites. Its reaction on the human body is reported to be minimal. Approval has been given by the National Research Council, and a government contract of several million dollars has been awarded Laros for commercial production.

(Announcement from R. K. Laros Co., Dept. CP, Bethlehem, Pa.)

AEC is setting up industrial hygiene fellowships . . .

those selected will have a year at U. of Rochester

Starting in the fall of this year, the Atomic Energy Commission will be sending a maximum of four Fellows to one year of schooling in industrial hygiene. The program will be administered by the Atomic Energy Project, School of Medicine and Dentistry, U. of Rochester, Rochester, N. Y.

Applicants must have a degree in engineering (preferably chemical), chemistry, or physics. Stipend is set at \$1500 per annum if single; an additional \$500 if married, and \$250

Actual Installations of

NEW PREMIER



TRANSPORTABLE DISPERSATOR

1 1/2 H.P., enclosed, hollow shaft motor and mounting clamp allow universal positioning of 4' DISPERSATOR drive shaft. Built-in start-stop control switch. Flexible shaft drive also optional for ease of handling and mounting with heavy explosion-proof motor.

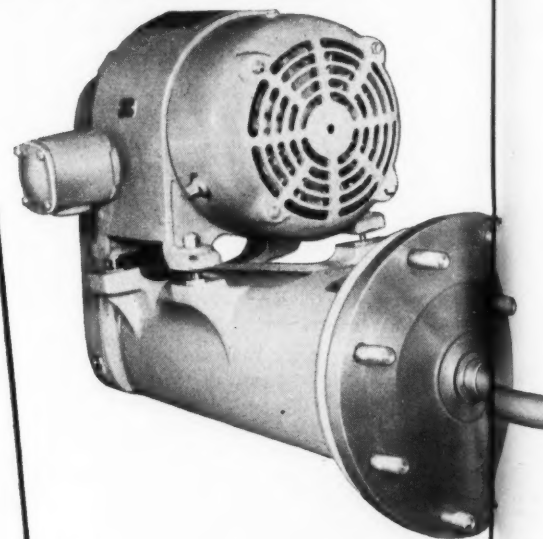
The Simplex Dispersator

Illustrating the type of processing in which the Simplex DISPERSATOR is finding application, we point with pride to the successful handling of alcohol clarification by dispersion and agitation of activated carbon. Although many mechanical mixers have been tested, distilleries have generally found that previously the use of compressed air was justified as the only medium capable of producing satisfactory results. This conclusion was drawn in full recognition of the high power cost, the extensive exhaust system required, and the activated carbon and volatilized alcohol losses to the exhaust stream.

CUTS POWER REQUIREMENTS

The Simplex DISPERSATOR is now successfully being used in this low-viscosity application, with side entry mounting on an open top tank. The power requirement has been cut to a fraction with a unit that does not cause exhaust losses. At the same time, the cycle has been reduced by the more rapid and complete action of the DISPERSATOR.

Are you faced with a similar problem? Our engineers would be pleased to consider your present or proposed operating conditions and recommend the type and size of DISPERSATOR, proper mounting and baffling to best utilize this revolutionary equipment in your process.



* DISPERSATORS ARE NOW SAVING PROCESS TIME IN

MIXING	Paint and Color Pastes; Cake and Cookie Batters; Custard
AGITATING	Bacteria Dispersions; NaOH in Naphtha
DISPERSING	Activated Carbon in Whiskey; Sodium in Organic Media
CONTACTING	Polymerization with Gaseous Catalysts
WASHING	Lube Oil with Sulfuric Acid; Cresylic Acid with NaOH to Scavenge Sulfuric
DISSOLVING	CMC, Gum Tragacanth, Gum Ghatti
INCORPORATING	Lime Slurry for Water Treatment
WETTING	Bentonite, Clays, Pigments, Coatings
REACTING	Saponification of Cotton Seed Oil

PREMIER
2181 GENESEE ST
GENEVA, N. Y.

DISPERSATORS

**Cut
Process Time***

The Duplex Dispersator

While the Duplex DISPERSATOR was primarily designed to provide a greater pumping capacity for use with more viscous liquids, the Duplex is also being well received as a top entry unit for drawing dry floating solids, gums and gels into liquids for rapid, intensive dispersion and solution.

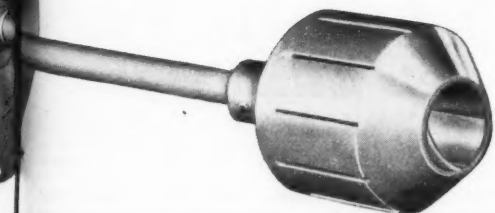
The incorporation of bentonites and clays which normally tend to "ball up" on wetting, into more or less thin slurries provides a striking comparison of the DISPERSATOR with conventional stirring equipment. The efficient handling of such materials as gum ghatti and carboxymethyl-cellulose has been amazing process men accustomed to a slow, tedious dissolving operation.

The advantage, of course, can also be utilized by operation at lower temperatures where this will prove the more desirable advantage, either to reduce the heat requirement, or to prevent side or chain reactions which manifest themselves at elevated temperatures.

In the event the above suggests operations in your plant which may benefit from the use of the Duplex DISPERSATOR, we will appreciate the opportunity to consider the details and pass on the benefit of our past experience.

FLANGE MOUNTING DISPERSATOR 5 H. P. DISPERSATOR

for side, top or bottom entry. Rugged, streamlined construction incorporates oil lubricated chain drive, sealed thrust bearings and positive liquid control seal.

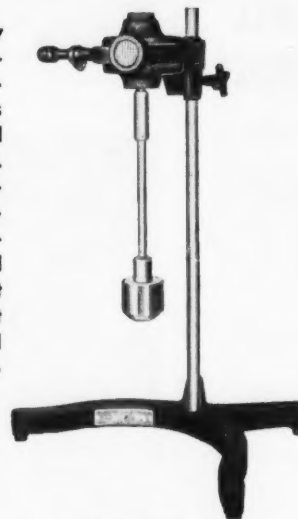


LABORATORY DISPERSATOR UNITS

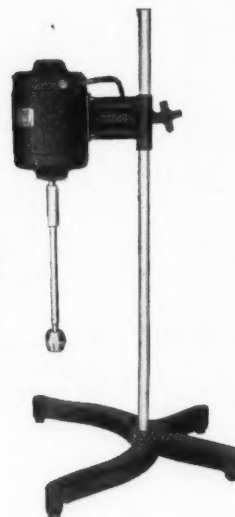
Intensive mixing is now available to save you laboratory time, speed up control mixing, develop results which can be reproduced by large size equipment. Various mounting and support arrangements, interchangeable DISPERSATORS, and variable speed control provide the most versatile and convenient adaptations for general Laboratory use and development studies.



3" DUPLEX,
Electric, Clamp
Mounting Type



Air Driven 2" SIMPLEX
with Lab Base Stand



Electric Lab Unit
with Base Stand and
1" Duplex DISPERSATOR

**MAIL THIS
COUPON TODAY**

PREMIER MILL CORP. • 2181 GENESEE STREET, GENEVA, N. Y.

Send me full details of the SIMPLEX DISPERSATOR and the DUPLEX DISPERSATOR.

Name

Firm

Street and Number

City State

IDEAS

additional for each of two dependent children. If the Fellow has completed one or more years of graduate work in a related field he will be allowed \$200 extra.

The AEC will not be obligated to provide employment after the year of school. Nor will the Fellow be obligated to work for the AEC or its contractors.

(Application blanks may be obtained from Mr. Merrill Eisenbud, New York Operations Office, U. S. Atomic Energy Commission, PO Box 30, Ansonia Station, New York 23, N. Y.)

Tetraethyllead analysis with X-ray absorption points way to faster determinations . . .

boasts accuracy and precision of
0.01 ml TEL per gallon

Analysis of lead gasoline was seen as one of the early applications of X-ray absorption. Heavy atoms of lead with a background of carbon and hydrogen would seem to make this material perfect for such testing. Early work in this direction was hampered by 1) presence of sulfur in most gasoline stock and 2) instability and inaccuracy of the X-ray equipment itself.

Current literature, however, indicates that a practical method for lead determination has been achieved. Advances in X-ray equipment have led to a null-balance system with high inherent accuracy and great speed. On the other hand, methods have been evolved to allow for sulfur with its troublesome atomic weight intermediate between carbon and lead. Solution of these problems is one more indication that this general method is worth investigation in similar cases.

In the present method, X-ray beams are passed through a sample of lead gasoline and a standard sample of unleaded gasoline. Balance position of ion-chamber circuit can be calibrated in terms of lead or tetraethyl-lead directly. When input voltage is held constant and a polystyrene block inserted in the X-ray beam, precision and accuracy are 0.01 milliliter of tetraethyllead per gallon. Even when no unleaded standard was available, accuracy of 0.05 ml per gal was attained.

(Information furnished by General Electric Company, Dept. CP, Schenectady 5, N. Y.)

For more information on product at left, specify CP 2996 . . . see information request blank between pages 2-3.

MILL CORP.

ASK OUR ENGINEERS

If your mixing, dispersing or reacting time is excessive, tell your problem to our engineers. If you give full details, they can help you by recommending the right model and size Dispersator to solve your problem.



FLEXIBLE STANDARDS for Pfaudler

Stainless Steel Heat Exchangers

Design features previously associated only with custom-built heat exchangers are now available at competitive standard cost under Pfaudler's new system of flexible standards.

For a given heat transfer area, you may select the most applicable combination of length and diameter. Further, nozzles can be of any size and in any position and can be either threaded or flanged.

RAPID DELIVERY — With our new production line methods, flexible standard units can be delivered in 4 to 12 weeks after the receipt of your order.

COMPLETE LINE — The flexible standard program applies to fixed tube sheet, single or multi-pass, tube and/or shell side stainless steel units in diameters up to 10". In addition, Pfaudler heat exchangers are available with shell diameters from 4" to 24" in four basic types of construction . . . fixed tube sheet condenser, outside packed floating head design with removable tube bundle and shell, "U" tube construction with removable bundle.



GET THIS PFAUDLER DATA BOOK — This 40-page fact-packed heat exchanger manual contains all the data you need to work out capacity and type problems. Easy-to-follow tables, curves and charts. Full details on Pfaudler heat exchangers. Mail the coupon for your copy.

Pfaudler

ENGINEERS AND FABRICATORS OF CORROSION RESISTANT
PROCESS EQUIPMENT

GLASS-LINED STEEL—Hastelloy • Aluminum • Tantalum • Teflon
Carbon Steel • Solid or Clad Stainless Steel • Nickel • Inconel •
Monel

THE PFAUDLER CO., Dept. CP-6, Rochester 3, N. Y.

Please send me the Pfaudler Heat Exchanger Manual
No. 837

Name _____
Title _____
Company _____
Address _____
City _____ Zone _____ State _____

When inquiring check CP 2997 on handy form, pgs. 2-3

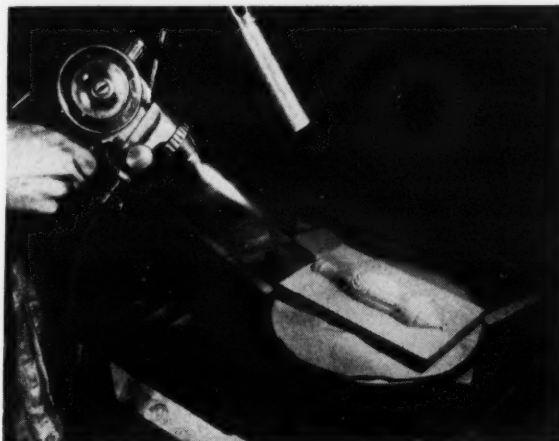
IDEAS

Metallizing makes low-cost molds for low-pressure molding of plastics . . .

fast method retains fine details; master may be cloth, metal, wood, plastic, glass, wax

A fast, low-cost method of making molds for slush and vacuum or "lay-up" molding of plastics uses the technique of metallizing (spraying of molten metal). The strength of the sprayed metal is ample for these molds, but not for high-pressure molding. The master may be metal, cloth, wood, plastic, glass, or even wax. Metal coating is said to retain the finest detail.

With this technique the master is sprayed first with a layer of Spramold wire, a low-melting alloy, to a thickness of about 0.040". Then a layer of Sprabronze AA, an alumi-



Making metal mold on plaster master by metallizing. Tube at top is delivering a cooling air blast

num-bronze alloy, is applied to a thickness of 0.030" for additional strength and to relieve internal stresses. This layer is followed with another 0.040" layer of the Spramold wire. There is no distortion of the mold because very little heat is retained by the metal particles when they strike the master.

(A bulletin, No. 99, illustrates and describes several very intricate molds. It is issued by Metallizing Engineering Co., Inc., Dept. CP, 38-14 30th St., Long Island City 1, N. Y. . . or for more information check CP 2998 on handy form, pages 2 and 3.)

Deadly atomic radiation from explosion is detected electronically for research planes . . .

sensitive "finger" measures less than 7", protects
airborne personnel gathering data

An electronic instrument, technically an ion chamber, measuring less than 7" long and about 3/4" diam has been successfully used in "putting the finger" on deadly atomic rays in planes flying over A-bomb blast sites.

Recently de-classified, the device has been used in two different detection systems, one unit for detecting radiation only a few hundred feet above the ground, the other for protecting research planes flying high over the blast site, immediately following the explosion and dispersion of the mushroom cloud.

Small size of the instrument is achieved by compression of argon gas inside the chamber less than 4" long and only 3/4" diam, under pressure 50 times that of the at-

TOPS in thermal shock-resistance!

STUPALITH low-expansivity ceramic materials

This unique ceramic material serves where conditions of extreme thermal shock prevail, or where negative or low positive expansivity is desired.

Stupalith parts may be made in sizes ranging from a fraction of an ounce, to items weighing several pounds. Forming is accomplished by pressing, casting, extruding or ramming. For parts requiring a high degree of dimensional accuracy, precision tolerances may be held by machining or grinding after firing. Safely used at temperatures up to 2400 degrees Fahrenheit.

Stupakoff engineers will be glad to help you select a type for your applications.

SEND FOR BULLETIN NO. 1051

STUPAKOFF

CERAMIC & MANUFACTURING CO.
Latrobe, Pennsylvania

When inquiring check CP 2999 on handy form, pgs. 2-3



Tough Concrete Patch Sets Instantly!

Repair broken factory floors without the usual traffic tie-up. Simply shovel INSTANT-USE into hole or rut — tamp smooth — truck over! No waiting! INSTANT-USE bonds tight to old concrete . . . right up to a feather edge. It's tough. Wears like iron. Won't crack or crumble. Install complete overlay where floors are badly chewed up. Used indoors or out. Immediate shipment.

MAIL COUPON for TRIAL OFFER and FREE HANDBOOK

INSTANT-USE

FLEXROCK COMPANY Offices in principal cities
3611 Filbert St., Philadelphia 4, Pa.

Please send me complete INSTANT-USE information, details of TRIAL ORDER PLAN and HAND BOOK OF BUILDING MAINTENANCE—no obligation. (Clip and attach Coupon to Co. letterhead).

Name _____
Title _____
Company _____
Address _____



When inquiring check CP 3000 on handy form, pgs. 2-3

CHEMICAL PROCESSING

mosphere. When gamma rays penetrate the steel wall of the chamber, the gas acts as an electrical connector between two electrodes, registering the amount of gamma radiation on a meter.

(Information supplied by General Electric Corporation, Dept. CP, Schenectady 5, N. Y.)

Case histories report savings with non-critical electrode

Eutectic leaflet features case histories of non-critical cast iron welding alloy for all types of cast iron or cast iron to steel structures. Photographs of applications testify to savings up to 80% in replacement costs and full 100% increase in production. Technical data are provided on uses of non-critical (no nickel) electrode as well as digest of physical properties. Bul TIS 991 is issued by Eutectic Welding Alloys Corporation, Dept. CP, 172nd St. and Northern Blvd., Flushing 58, N. Y. When inquiring specify CP 3001 on handy form, pages 2 and 3.

Packaging beer for shipment takes only 20 seconds with steel strap . . .

reports reduced handling cost and less pilferage of product in metal-bound cartons

By using flat-steel strapping in packaging assembly line, Blatz Beer Company of Milwaukee has greatly reduced its handling cost of exporting its product to more than forty countries. Compact, sturdy unit-loads are ready for shipment in 20 seconds. The method has been reported to be highly successful in reducing damage and pilferage to about 100,000 cases, each containing 24 12 oz cans of beer that are processed each month.

The corrugated cartons (200 lb test) are strapped together into 1.1 cu ft unit-loads with two loops of $\frac{3}{8}$ x 0.15-in steel strap and are secured with tools that combine the



Compact, easy-to-handle loads are made when beer cans are handled in steel-strapped cartons

tensioning, sealing, and cutting operations. After the cases have been strapped, they are moved along conveyors to trucks, which transport the beer to railroad yards. Other conveyors in the yards are used to transfer the cases from trucks into the box cars.

Because cartons have been strapped together, there are fewer unit-loads to handle. Increased protection is also afforded to individual cans.

(Information supplied by Acme Steel Company, Dept. CP, 2840 Archer Ave., Chicago, Ill.)

**you save floor space
you minimize rejections
and you get**

UNIFORM SCREENING

with . . .

**Low-Head
GYRATORY
SIFTER**

YOU SAVE valuable floor space with the *Low-Head* gyratory sifter because it's designed for compactness. And your product rejections will be kept to a minimum because of the gentle gyratory action of the *Low-Head* — the most efficient sifting action yet discovered.

There is a *Low-Head* gyratory sifter to meet your individual chemical milling requirements. While gentle in action, it's a high speed, high capacity sifter holding four to seven sieves with the screens of silk or metal and a wide variety of mesh to suit the job. Whether your screening problem calls for the all-wood, wood with metal lining, or the all-metal *Low-Head* sifter, you'll want to investigate this highly efficient, easy-to-clean sifter.

Any A-C representative will be happy to give you full information, or write Allis-Chalmers, Milwaukee 1, Wisconsin.

A-3688

Low-Head is an Allis-Chalmers trademark.



ALLIS-CHALMERS

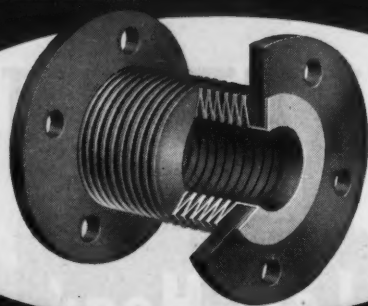
Chemical Milling and Processing Equipment

When inquiring check CP 3002 on handy form, pgs. 2-3

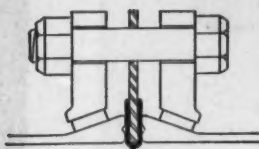
CHEMISEAL

MADE OF
TEFLON

Expansion Joints, Gaskets
and Accessories for Glass Pipe

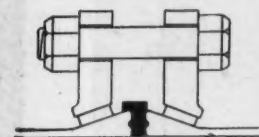


ACID, CAUSTIC, SOLVENT RESISTANT

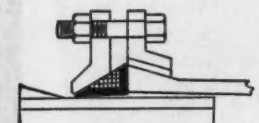


(Above:) Chemiseal Expansion Joints, No. 212 for use where thermal expansion, vibration or misalignment requires a flexible pipe section. Sizes from 1 in. to 12 in. I.P.S.

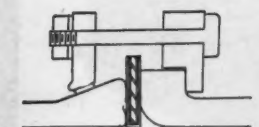
(At left:) Chemiseal Jacketed Gaskets, Types T6N or T6-300, standard for Corning conical flanges, seal at low bolt loads.



Chemiseal Snap-on Type 820 Gaskets. Molded to match contour of conical-end glass pipe, they assure perfect automatic centering of joints and free flow of materials. Made for all standard pipe sizes from 1/4 in. to 6 in.



Chemiseal Jacketed Slip-joint Gaskets (Teflon-jacketed Neoprene) provide positive, chemical-proof seals with low bolt loads. Made for standard pipe sizes from 1 in. to 6 in.



Chemiseal Adaptors No. 2-CRS, provide a tight, safe seal between glass coated steel or similar nozzles with large inside radii, and vessels of glass-lined steel, porcelain, Havg, etc. Easy to handle, single units—these adaptors combine a steel bearing ring for rigidity, and a resilient core for perfect seal—both contained in a chemically inert Teflon Jacket.

UNITED
STATES
GASKET
COMPANY

FLUOROCARBON
PRODUCTS DIVISION
FABRICATORS OF "TEFLON", "KEL-F"
AND OTHER FLUOROCARBON PLASTICS
CAMDEN 1, NEW JERSEY



*duPont's trademark for its tetrafluoroethylene resin

When inquiring check CP 3003 on handy form, pgs. 2-3

IDEAS

**Intensive research creates
new fields of use
for peroxides . . .**

largest number of applications based on oxidizing properties, especially of textiles, pulp, etc

There are a number of chemical fields in which peroxides, particularly hydrogen peroxide, have gained in importance and grown in stature. This growth can be traced to the intensive work that has been done investigating the properties of the peroxides — thereby laying the groundwork for its varied uses in science and industry. In fact, hydrogen peroxide is a classic example of how intensive application research can create many new uses based upon a few basic properties.

Oxidizing Properties

By far the largest number of uses of peroxides are based on their oxidizing properties. In terms of quantities of peroxides consumed industry-wide, bleaching has been and still is on top of the list. More items are now bleached with peroxides than with any other bleaching agent. One of the reasons for this popularity is that peroxide bleaching can be modified so as to adapt it to a great many conditions encountered in practice.

It is perhaps a recognition of the latter-mentioned fact that has contributed most to the development of new textile bleaching processes in recent years. These new processes have greatly simplified existent methods and have reduced the overall bleaching cost. Particularly just before and after the last war hydrogen peroxide consumption took a sharp turn upwards, jumping from about 30% of the goods bleached to about 60% in a few short years. This was caused by the introduction of continuous bleaching processes.

Studies of the rate of peroxide bleaching revealed that it was possible to bleach cotton in a very short time by applying a small amount of a more concentrated peroxide solution at higher temperatures. Formerly it took many hours, sometimes days, to produce satisfactory bleaching effect on cotton.

Another field in which peroxides have gained great importance since World War II is the pulp and paper industry. For a long time the paper and pulp industry wanted to use low-cost groundwood pulp with its inherently valuable properties in higher cost papers. The low brightness of groundwood was a deterrent for this purpose, but the development of commercially practical peroxide bleaching methods eliminated this disadvantage. Conservation of natural resources and reduction of stream pollution gave additional impetus to this development. Studies are now being made to develop satisfactory and economical peroxide bleaching procedures for chemical pulps.

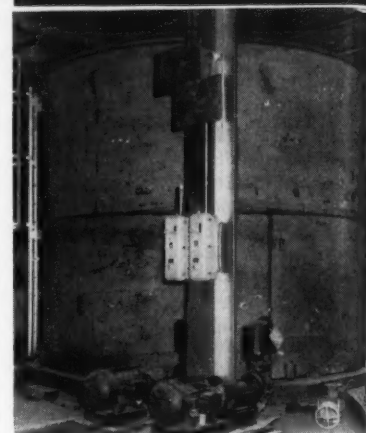
A few important developments in recent years have contributed to a larger utilization of hydrogen peroxide for organic oxidations: 1) improved reactions utilizing hydrogen peroxide or peracids; 2) advances in hydrogen peroxide manufacture leading to the commercial availability of pure and stable highly concentrated grades, for example 90% H₂O₂; and 3) commercial introduction of peracetic acid, a particularly versatile oxidant.

Among noteworthy reactions of either hydrogen peroxide or peracids are: peracids with unsaturated compounds to give oxirane (epoxy derivatives) and/or glycols — recent application is in formation of epoxy insecticide, dieldrin; synthesis of 17-hydroxy steroids such as cortisone; oxidation of substituted naphthalenes to produce quinones; and ring splitting action on benzene rings.

HORTON TANKS

for the Storage of

Corrosive Liquids



FAMOUS the world over in the petro-chemical field, Celanese Corporation of America contributes much to the organic chemical needs of industry. Acetone, methanol and formaldehyde are just a few of the many chemicals they produce.

The tank shown above is one of three Horton tanks we recently built at the Celanese Corporation's tank terminal at the Celriver Plant, Rock Hill, South Carolina. The structures are 17 ft. in diam. by 14 ft. and, due to the corrosive nature of the liquid stored, are built of type 304 stainless steel.

Chicago Bridge and Iron Company builds many types of structures for chemical storage and processing. We are equipped to fabricate and erect tanks of solid stainless steel, carbon steel clad with stainless on the inside or carbon steel lined with corrosion-resistant metals. Write our nearest office for information.

CHICAGO BRIDGE & IRON COMPANY

Atlanta 3	2107 Healey Bldg.
Birmingham 1	1533 North Fifth St.
Boston 10	1007-201 Devonshire St.
Chicago 4	2116 McCormick Bldg.
Cleveland 15	2212 Guildhall Bldg.
Detroit 26	1535 Lafayette Bldg.
Houston 2	2151 C & I Life Bldg.
Los Angeles 17	1536 General Petroleum Bldg.
New York 6	3314-165 Broadway Bldg.
Philadelphia 3	1650-1700 Walnut St. Bldg.
San Francisco 4	1545-200 Bush St.
Seattle 1	1307 Henry Bldg.
Tulsa 3	1649 Hunt Bldg.

When inquiring check CP 3004 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Oxidizing action of hydrogen peroxide also finds many applications in inorganic chemistry. For example, objectionable impurities in various metal salts are readily removed by precipitation after hydrogen peroxide treatment. Per compounds have attracted interest for incorporation into dilute acids used for ore leaching (tungsten, molybdenum) whereby greater and more rapid solubilization of the desired metal is achieved.

Bactericidal and Fungicidal Properties

Recent work has shown peracetic acid to be an excellent bactericide-fungicide. Comparative tests with a large number of quaternary ammonium compounds and high chlorine content germicides have shown peracetic acid to be the most effective of a large number of germicides tested against spore forming organisms of the flat sour type. It has found application as a germicidal wash for fruits and vegetables and for equipment sanitizing.

Free Radical Formation

An interesting property possessed by peroxygen compounds is their ability to form free radicals. Accordingly, peroxides find wide application in processes initiated by free radicals. These include polymerization reactions of the vinyl type and organic reactions proceeding through a free radical mechanism. Depolymerization reactions may also be considered in this category.

Possibly the most notable recent advance in peroxide catalysis has been the development of redox or reduction activated polymerization systems. Various polyvalent metals, e.g., iron and copper, or reducing agents, e.g., sugars and thiosulfate, used in conjunction with peroxygen compounds, have been found to greatly increase the rates of polymerization. Redox polymerization has made possible practical polymerization rates at low temperature. In the synthetic rubber field, this has led to so-called cold rubber.

Depolymerization reactions are similarly catalyzed by peroxides. Various polymers under the action of heat and a peroxide breakdown to lower polymers and monomers. These reactions find use in recovery operations on plastic scrap. In the presence of peroxides, polymers such as starch, protein, or cellulose can be made to depolymerize.

High Heat of Decomposition and Reaction

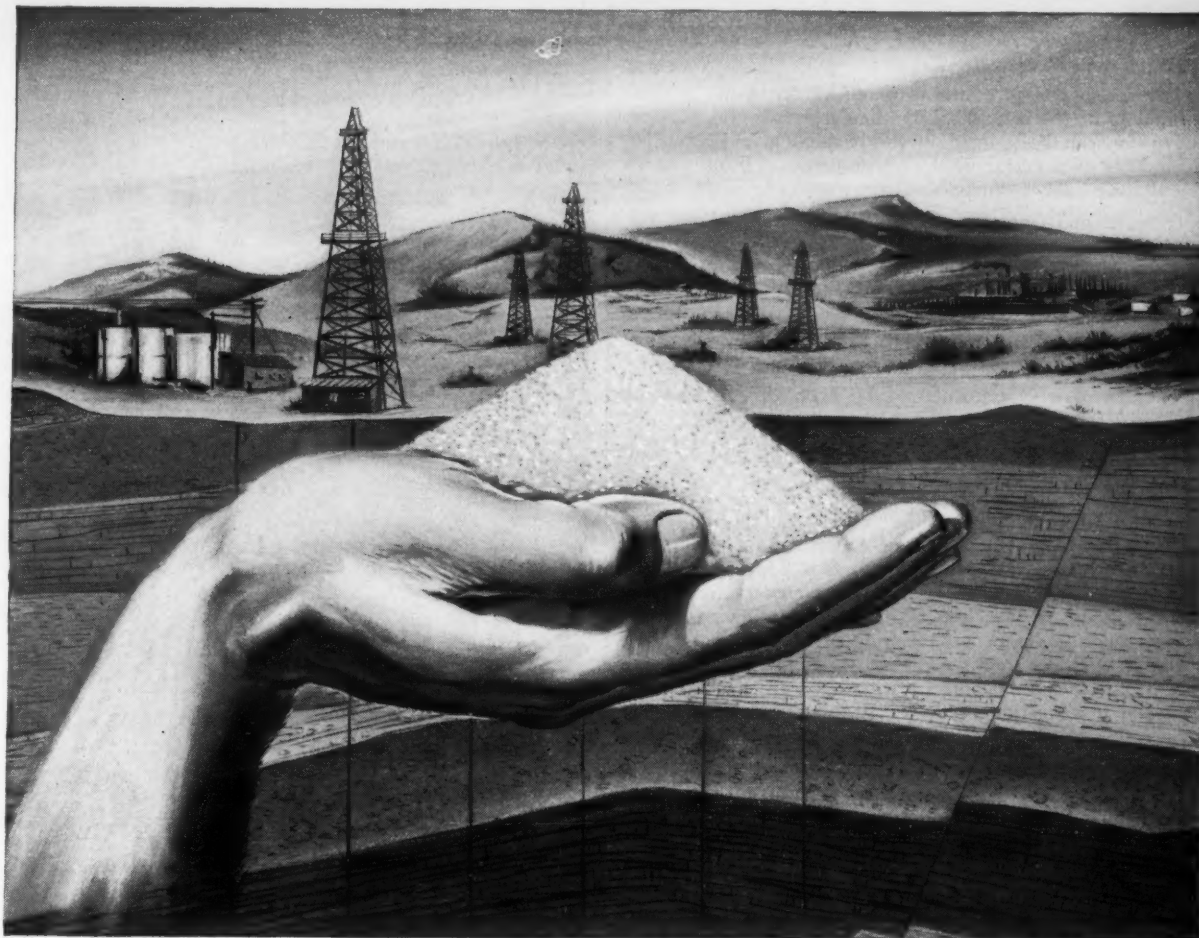
The exothermic hydrogen peroxide decomposition reaction as such, and the utilization of the formed oxygen for combustion of fuels, form the basis for the use of hydrogen peroxide as a source of energy. This energy can be released at a comparatively slow rate to create mechanical propulsion or at a very high rate to create explosions. It is well known that the Germans used hydrogen peroxide as such or in combination with fuels in launching or driving their "V" weapons, such as torpedoes, airplanes and submarines.

Gas Formation on Decomposition

Since the reaction whereby one mole of hydrogen peroxide on decomposition gives rise to one mole of oxygen can be made to occur at will, and since the only by-product of the decomposition is water, hydrogen peroxide is a convenient source of oxygen. Various techniques have been devised for employing hydrogen peroxide and its salts as a source of pure oxygen, e.g., for breathing apparatus.

The development of large volumes of gas from a small volume of hydrogen peroxide (1 volume of 50% hydrogen peroxide gives 197 volumes of oxygen) has been utilized in preparation of porous products. Hydrogen peroxide plus a catalyst is incorporated into the product to be foamed.

(Continued on next page)



"Lift-up powder" for tired oil wells

**How Celite
filtration
helps boost
oil output**

TO BOOST THE OUTPUT of "tired" oil wells bordering on the limit of economic production, profit-conscious operators inject water under extreme pressure into the porous oil sandstone and force out the accumulated oil. But first, they filter this repressurizing water with Celite* to remove the suspended solids which would eventually clog the microscopic pores of the sandstone, thus blocking the flow of water. *All waters contain at least a trace of these troublesome impurities.*

Celite's ability to do an exceptional filtering job can be attributed to these important factors which make it unique among filter aids:

Carefully processed from the purest deposit of diatomaceous silica known, Celite is available in nine standard grades—each designed to trap out

suspended impurities of a given size and type. Whenever you reorder, you are assured of the same uniform, accurately graded powder received in your initial order. Thus, with Celite, you can count on consistent clarity in your filtrates—at highest rate of flow—month after month, year after year.

The secondary recovery of oil by water flooding is just one of many processes in which Celite has provided the absolute clarity vital to a successful operation. The proper grade of Johns-Manville filter aid will assure you the same results—regardless of the product or process involved. To have a Celite Filtration Engineer study your problem and offer recommendations, simply write Johns-Manville, Box 60, N. Y. 16. No cost or obligation.

*Reg. U. S. Pat. Off.



Johns-Manville CELITE

FILTER AIDS

When inquiring check CP 3005 on handy form, pgs. 2-3

(Continued from preceding page)

The decomposition of the peroxide results in an "in situ" blowing of the material. Building materials, for example gypsum, can be foamed in this way to give lightweight products of superior insulating properties. Foam plastics and foam rubber can be similarly produced.

(Summarized from Bul 36, Becco Sales Corp., Dept. CP, Station B, Buffalo 7, N. Y. . . or for more information check CP 3006 on handy form, pages 2 and 3.)

Moisture, not O₃, responsible for cellulose deterioration . . .

extensive experimentation by NBS throws light on effect of moisture and ozone on cotton textiles

When water evaporates from cotton cloth, a brown line is often observed at the boundary between the wet and dry areas. Recent studies at the National Bureau of Standards indicate that this "brown-line" effect may contribute significantly to the degradation of cotton during production, processing, and use. From the data, it appears that continuous evaporation of water at the boundary line causes the cellulose in the cloth to oxidize at ordinary temperatures, with consequent weakening of the material. These results were obtained by H. Bogaty, K. S. Campbell, and W. D. Appel of the NBS textile laboratory in an experimental investigation of the effects of moisture and ozone on cotton textiles.

Progressive deterioration of cotton cloth when exposed to the weather in tarpaulines, tents, awnings, and various items of military equipment has long been a problem. Sunlight, mildew, and acid-containing industrial atmospheres are important causes of the deterioration which have been studied extensively. However, complete data on the effects of moisture and ozone have been lacking. As part of a broad program of research on the degradation of cellulose, the Bureau undertook to isolate these two factors and to determine the nature and relative importance of their contributions to textile weathering.

Effect of Moisture

Brown-line experiments, in which one end of a strip of fabric was kept immersed in water under controlled conditions, were carried out at room temperature. In general, several hours were sufficient to produce a distinct yellowish-brown color at the wet-dry interface. The brown line could be produced in viscose rayon, filter paper, scoured cotton, and bleached cotton. It was found to consist of a fluorescent water-soluble material.

Rate of production of the brown material was remarkably constant. A commercial bleached, sizing-free, alcohol-extracted print cloth was found to produce about 2 milligrams per day per linear foot of interface. This rate was the same whether the experiments were run in the dark, in diffused daylight of the laboratory, or in the light from a tungsten incandescent lamp.

Other experiments showed that the water-soluble brown material could be extracted from fabrics subjected to other types of degradative processes. For example, significant amounts of the brown fluorescent substance were produced in cotton cloth weathered out of doors for six months, heated in the dark for 10 days, or exposed to radiation from a carbon arc for six hours.

To investigate the possibility that the brown substance might have already existed in the fabric and subsequently concentrated at the interface, a sample of cloth was alternately exposed in brown-line experiments and water-extracted over a period of eight months. As no decrease in

BUILDING FURNACES?

SHORT ON

here's help

Use Super Refractories by

CARBORUNDUM

Trade Mark

Refractories Division

"Carborundum", "Carbofrax", "Mullfrax" and "Alfrax" are registered trademarks which indicate manufacture by The Carborundum Co.

The Carborundum Company, Perth Amboy, N. J.



LOW HEAT CAPACITY is an inherent property of ALFRAX BI aluminum oxide refractory. It's literally made of bubbles — hollow spheres of Al₂O₃, specially bonded together. It has good load strength, is an exceptional insulating material for jobs over 3000F. Also available as a castable cement. Just mix with water and handle like Portland cement.

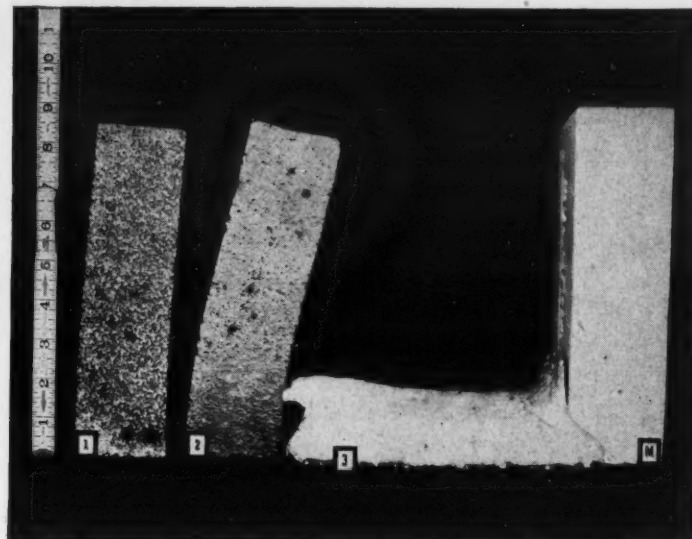
How to keep shortages of certain critical alloys and refractories from delaying furnace construction.

For want of certain scarce heat resisting metals or special duty refractories, many furnaces nowadays get nine-tenths built . . . then wait for the scarce materials. Surprisingly often, this delay could be avoided by substituting our Super Refractories. These materials *are available*. They do have the properties needed. And they'll generally outperform the metals or refractories they replace, *at a lower final cost*.

Consider metals, for example — how do Super Refractories compare? To begin with, they are generally very strong. (The



ALLOY REPLACEMENT is an important function of our CARBOFRAX silicon carbide refractories. These unusual materials often double for furnace parts made of chrome, nickel or cobalt alloys, such as skid rails, muffles, roller hearths, radiant tubes, brazing fixtures, etc. They not only outlast metals, but can also increase the capacity of your equipment.



MULLITE refractories of certain types are often hard to get. However, the purest of the mullites — MULLFRAX electric furnace mullite — is still available. Made by melting together exact proportions of high purity raw materials, it is an entirely synthetic product. Hence, it is purer and more refractory than mullite obtained from natural sillimanite. Note, in the test above — five hours at 3000F — that the MULLFRAX brick ("M") is the only one of these four commonly used refractories, untouched by the heat.

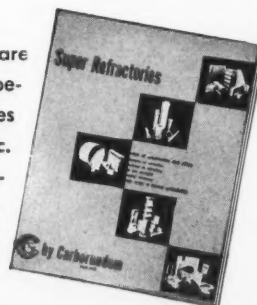
MATERIALS?

modulus of rupture of one Super Refractory averages 3100 psi at 2460F). Most important, they *retain their strength* at temperatures where metals are unusable. All Super Refractories can be safely used considerably above 2800F, whereas 25-12 chrome-nickel steel loses strength rapidly over 1500F, is unsafe over about 2100F.

Some Super Refractories are also more resistant to abrasion than metals, particularly at furnace temperatures. In fact, they are the *toughest known materials* for large scale use. Super Refractory hearths, skid rails, etc. distinctly outwear their alloy counterparts.

Muffles, hearths, radiant tubes and other indirect-heating furnace parts, which must transfer heat rapidly, are often made of Super Refractories. *One Super Refractory conducts heat almost as rapidly as chrome nickel steels!*

Practically all Super Refractories are available as cements, bricks, or special shapes moulded to close tolerances — including fitted joints, tubes, etc. Information is available on the principal properties of all major compositions. Just send the coupon for our free booklet.



You'll find our Super Refractories, too, where chemical attack is severe. They're used in muriatic acid furnaces, hydrogen cyanide converters — even as spray nozzles for sulfuric acid.

There's another Super Refractory that has good insulating quality, particularly at temperatures over 3000F. This material makes an excellent low-heat-capacity lining, for either facing or backing up purposes.

In fact, for practically any combination of furnace conditions — high heat, heat shock, flame impingement, etc. — there's usually a Super Refractory to fit the job . . . and do it better. So don't wait until scarce materials get scarcer. Check up on Super Refractories now. Remember, it's not the first, but the *last cost* that counts — and an unfinished furnace becomes increasingly costly. Write or call us today.

Dept. S-62

Refractories Div., The Carborundum Co.
Perth Amboy, New Jersey

Please send your free booklet on properties of Super Refractories.

Name

Position

Company

Street

When inquiring check CP 3007 on handy form, pgs. 2-3

IDEAS

rate of formation of the extractable brown substance was observed, it was concluded that the brown material formed at the interface by a chemical change in cellulose. The possibility that the brown line could be produced by iron or other inorganic constituents of the material was ruled out by the results of spectroscopic analyses.

Further chemical study of the brown-line substance indicated that oxycellulose of the mildly reducing acidic type is formed. The oxidation appears to occur in part at the primary hydroxyl group of the cellulose molecule. Polyglucuronic acid is first formed, after which the chain breaks into soluble, low molecular weight fractions.

Others have found that small amounts of a soluble reducing substance are obtained by repeated extraction and drying of pure cellulose. This reaction may be similar to the brown-line effect. Numerous other phenomena such as spots observed in paper chromatography and the brownish areas which appear on goods during shut-downs in paper mills and textile finishing plants, may well be caused by a similar reaction.

Action of Ozone

In the Bureau's ozone experiments, samples of cotton cloth, both wet and dry, were exposed for varying periods to air containing ozone in known amounts. The dry cloth deteriorated very little or not at all, even in long exposures. But when the cloth was kept wet, substantial deterioration was observed.

At high ozone concentrations deterioration was rather rapid — three or four days of exposure to air containing 160 parts per million of ozone resulted in very considerable loss of strength. However, when the ozone concentration was reduced to 0.06 part per million, deterioration proceeded very slowly.

Moist cotton duck exposed to the lower concentration for 50 days lost only 20 per cent of its breaking strength. Under ordinary conditions of outdoor use, a concentration of this magnitude could hardly be expected to occur along with the requisite wetness of cloth more than 10 per cent of the time. At this rate, 500 days of outdoor exposure would be required for the duck to lose 20 per cent of its strength through the action of ozone alone. In practice, unprotected cotton fabrics deteriorate much more rapidly.

Thus, the NBS study indicates that the contribution of ozone to deterioration of cotton in weather exposure must be relatively small. It would appear that the effects of heat and sunlight are much greater than that of ozone.

(Information courtesy of National Bureau of Standards, U.S. Department of Commerce, Washington 25, D. C.)

Photoelectric equipment cuts high cost of apparatus

Photoelectric equipment designed to eliminate the high cost of specially designed apparatus is described in four-page catalog. Complete line of amplifier-relays and light source and phototube units is shown. Equipment illustrated is widely used in production applications such as counting and weighing; packaging and wrapping; routing; bottle filling; and inspection for size and weight. In addition it is used for indexing; and control of motors, molding register, spraying, humidity, and liquid level. Information on smoke density indicators is also available on request.

"Photoelectric Equipment for Industry" is issued by De-Tec-Tronic Laboratories, Inc., Dept. CP, 1711 Terra Cotta Place, Chicago 14, Illinois. When inquiring specify CP 3008 on handy form, pages 2 and 3.

IDEAS

Solves simultaneous linear equations in one shot

Lineac is an electrical analogue computer which solves linear simultaneous algebraic equations whether they are scalar or complex. It uses no amplifiers yet produces a solution immediately — without manual or automatic iteration. Used in reverse, it will simulate linear functions where each term is the product of a constant and a variable.

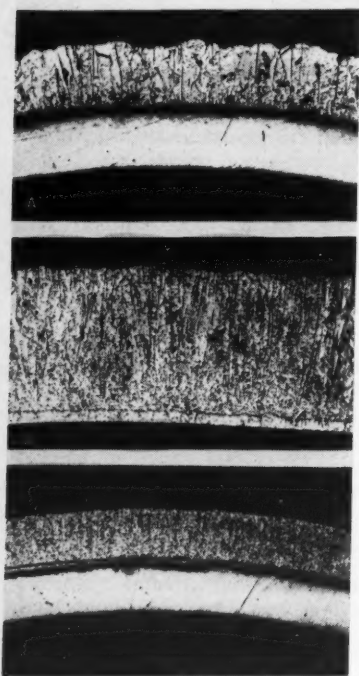
Consisting essentially of multi-coil tapped transformers and a voltage divider, Lineac operates on sixty cycle power. Basic components (these non-precision transformers and rheostats) are stable and have a long life. Hence computer requires little or no maintenance.

(Information received from American Hydromath Corp., Dept. CP, 145 W. 57th St., New York 19, N. Y.)

Find efficient way to electroplate aluminum . . .

electrodeposition obtained from non-aqueous solution

NBS announces a practical process for electrodepositing aluminum from non-aqueous solution at room temperature. Dense, ductile deposits are being ob-



Deposits obtained at low current densities (A), with periodic reverse current (B), and with addition of β,β' -dichloroethyl ether



Major Oil Refineries *use*



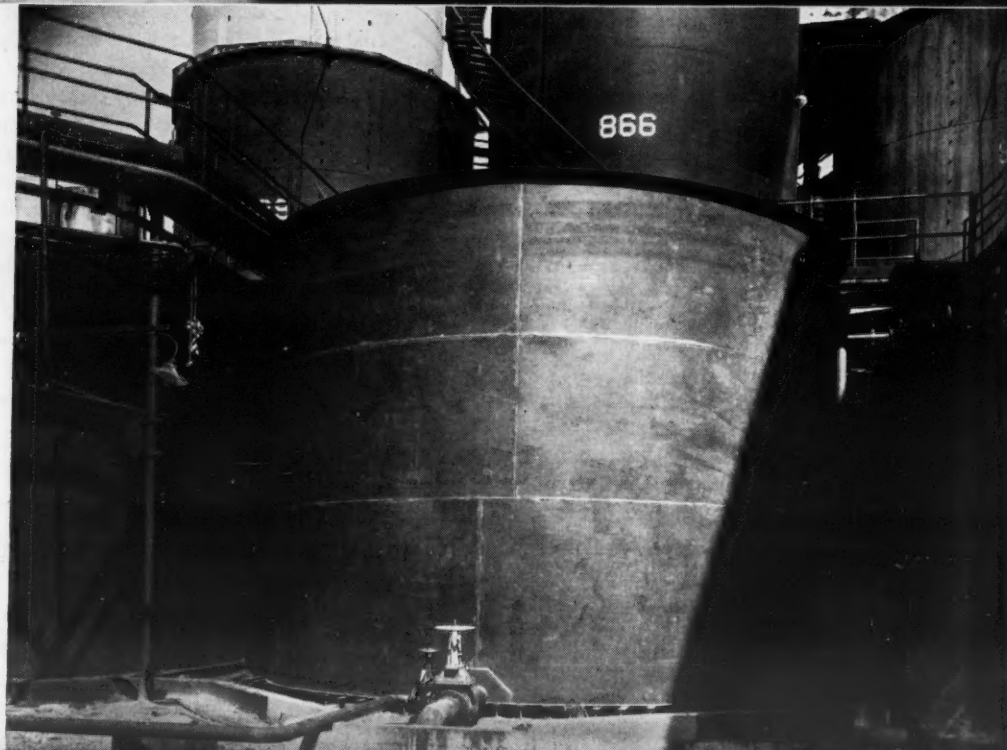
Inside view of tank showing construction. It was fabricated in three rings with Ampco-Trade electrodes. The top and middle rings are $\frac{3}{8}$ inch Grade 8 Ampco Metal plate. The bottom ring is $\frac{1}{4}$ inch Grade 8 Ampco Metal plate.

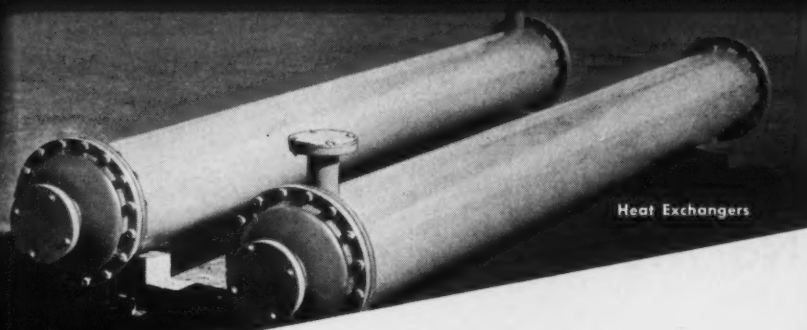
Inner coils are $1\frac{1}{2}$ inch Schedule 80 Grade 8 Ampco Metal Pipe connected with 150 lb. slip-on flanges.

Grade 8 Ampco Metal bolts and Grade 15 Ampco Metal nuts were used throughout.

Fabricators: Pacific Coast Engineering Company, Alameda, California.

Ampco Metal sulfuric acid sludge tank in operation at Shell Oil Co.'s Martinez, California plant. Tank is 20 ft. high and 24 ft. in diameter.





Heat Exchangers

AMPCO* METAL

to hold Sulfuric Acid Sludge

because it **RESISTS**
CORROSION

Yes, Shell Oil Co. and many other refiners and companies in the process industries use Ampco Metal to solve corrosion problems.

Here's why! Ampco Metal Grade 8, one of a series of engineered aluminum bronze alloys, has these unique properties: high resistance to corrosion . . . high tensile strength (75,000 psi) . . . high physicals at extreme temperatures . . . high strength to weight ratio . . . high impact and fatigue values (Charpy @ -423°F., 93 ft. lbs., @ 70°F. 75 ft. lbs., fatigue limit 28,000 lbs. @ 100,000,000 cycles) . . . high resistance to wear from erosion, abrasion, cavitation-pitting . . . high compressive strength (E. L. in Comp. 25,000 psi) . . . high modulus of elasticity (18,000,000) . . . easy to fabricate with Ampco-Trode* welding wire and coated electrodes.

Ampco Grade 8 has Boiler Code Approval and is available in sheet, plate, extrusions, pipe, tubing and fasteners. It may be the solution to your corrosion problems. Consult your nearest Ampco Field Engineer or write us for further information.

Tear out this coupon and mail today!

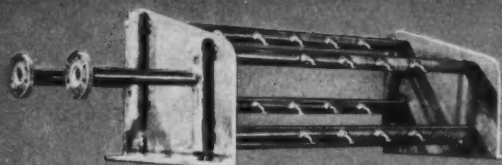
*Reg. U. S. Pat. Off. Ampco Metal, Inc., Milwaukee, Wisconsin

Ampco Metal, Inc.

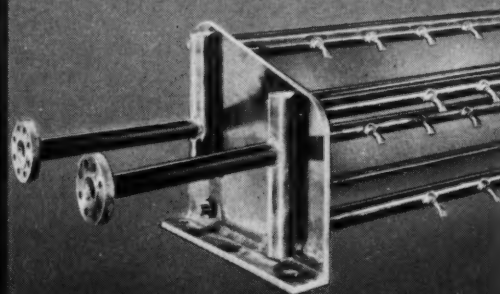
MILWAUKEE 46, WISCONSIN

West Coast Plant —

BURBANK, CALIFORNIA



Sulfuric Acid Spray Unit



Fabricating Ampco Metal with Inert Gas Consumable Electrode Welding

IDEAS

tained from organic plating bath, consisting of ether solution of aluminum chloride and metal hydride.

Electrodeposition from non-aqueous solutions has been tried in the past, but the procedure was too difficult for practical applications; and deposits were lacking in purity, ductility, and other desirable qualities. This method produces thicknesses of 0.05 inch and thicker deposits may be obtained.

Current densities in the bath may be as high as 4 or 5 amp/dm². However, if thick deposits are desired, the current density should not be greater than 2 amp/dm².

Another factor is the amount of metal hydride used in the bath. Sufficient metal hydride content yields white, mat, and quite ductible deposits. Low hydride content results in hard, brittle, and grey deposits; in some cases deposits will peel or crack from the cathode. Ordinarily, deposits which are 0.01 inch or more thick are visibly crystalline; but this effect can be reduced by adding a small amount of β, β' -dichloroethyl ether.

If hermetically sealed, the plating bath will keep for several weeks. Its composition is easily controlled since the only constituent that changes appreciably is the metal hydride. Occasional additions of this component will increase the life of the bath. However, the metal hydride eventually becomes insoluble and the bath can no longer be used.

(Summarized from report by NBS, U. S. Department of Commerce, Dept. CP, Washington 25, D. C.)

AEC office to give technical data to industry

The Atomic Energy Commission has established an Office of Industrial Development at its Washington headquarters to handle dissemination of AEC technical data to industry. Such data will have primary importance in the fields of chemistry, metallurgy, specialized equipment, power generation.

Headed by Dr. William Lee Davidson, the office will "provide a single point of contact with positive responsibility to foster wider industrial participation in the Commission's program. . . ."

(Dr. Davidson is former Director of Physical Research for The B. F. Goodrich Company, Akron, Ohio.)

For more information on product at left, specify CP 3009 . . . see information request blank between pages 2-3.

AMPCO METAL, INC., Dept. CP-6, Milwaukee 46, Wisconsin

Send me information on the application of Ampco Aluminum Bronzes for corrosion-resistant service in the Process Industries.

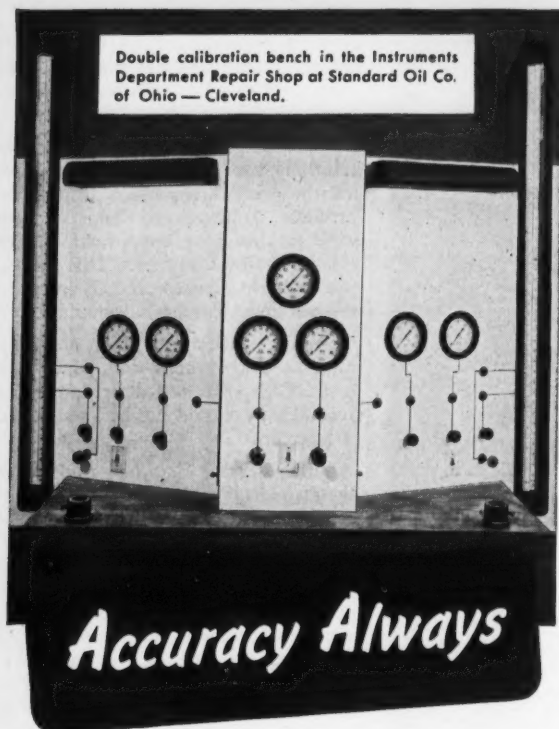
Name.....Title.....

Company.....

Company Address.....

City.....(.....) State.....

PR-7



With this unique calibration bench, Sohio checks its hundreds of flow and low pressure instruments — to insure their continuous accuracy of flow measurement.

The Meriam Dual Tube Model M-100 Manometers permit quick, easy reading up to 200" water pressure. These instruments consist of two separate manometer tubes in the same case — each tube with individual well. The left tube has a scale increasing upward; the right tube a scale increasing downward. Both tubes measure the same pressure and permit the operator to read the manometer tube at the most convenient eye level.

For many years at Sohio, as well as at other oil, chemical, and processing companies, Meriam Manometers have proved thoroughly satisfactory for their specific applications. For further information on this Dual Tube Manometer development ask for Catalog Sheet M-100.

THE MERIAM INSTRUMENT CO.
10940 MADISON AVENUE • CLEVELAND 2, OHIO
WESTERN DIVISION: 4760 E. OLYMPIC BLVD., LOS ANGELES 22, CALIF.
IN CANADA: PEACOCK BROS., LTD., MONTREAL

MERIAM ★
★ *Instruments*
ESTABLISHED 1911

MANOMETERS, METERS AND GAUGES FOR THE ACCURATE MEASUREMENT OF PRESSURES, VACUUMS AND FLOWS OF LIQUIDS AND GASES

Process Instrumentation

Ultrasonics: Basic Viscosity Instrument Uses No Moving Parts

Temperature to 650°F
Pressure to 10,000 atm
Viscosity to 50,000 cp



Indicator with probe in foreground

ULTRASONICS have led to a practical instrumentation set-up for viscosity measurement and control of Newtonian liquids, non-Newtonian liquids, and high polymers. Field tests during the past year indicate that these and similar applications can be easily handled:

Newtonian Liquids — lube oils and petroleum products, syrups, unbodied varnish, vegetable oils

Non-Newtonian Liquids — paints, glues, printing inks, gelatine, drilling muds, putties, and other colloids, emulsions, and suspensions

High Polymers — polystyrene, phenol-formaldehyde melamine and alkyd resins

An all-metal, hermetically sealed probe about the size of a fountain pen operating with an electronic computer make up the instrument called the Ultra-Viscoson. Viscosity is determined by applying ultrasonic power to the probe. Computer, which may be located as far as a mile away from the probe, converts signal into a viscosity measurement or control action within milliseconds. Actual calibration is in centipoise x gram/milliliter — actual viscosity times density in the case of Newtonian liquids; apparent viscosity times density in the case of non-Newtonian Liquids.

Any container which holds more than 4 milliliters of liquid can be used. Probe can be mounted in kettles, tanks, or pipelines. It can simply be dipped into a sample. Operating temperature range runs from minus 109 to 650°F, and while standard probes are not recommended for service above 500 psi, special probes permit accurate measurement up to 10,000 atmospheres.

Two features of the computer make possible close interpretation of readings. First, overall range of 0 to 50,000 cp x gm/ml is broken into four decades (0-50/500/5000/50,000). Second, a zero suppression adjustment permits maximum sensitivity to be realized.

Besides checking and controlling viscosity in the lab and in process, Ultra-Viscoson can be used for a number of special determinations. In fluidized solid catalyst process it measures density and loading factor and also indicates surging conditions in the line. Adhesive strengths of glues, paints, resins, plastics, etc, have been

measured. Pressure sensitive tapes produce a reading which is a function of pressure applied.

Automatic Systems

In thinning oil refinery bottoms for fuel oil, a system employing this instrument and control valves is to be used to replace spot checks now made. Similar petroleum installations are contemplated for lube oil blending and control of fractionating columns. Another system will employ six probes and one computer to monitor six polymerizing kettles for plastics.

Automatic recording and controlling installations have been planned. Some are multi-probe systems. Automatic temperature compensation can be built-in and, of course, systems can be made explosion-proof.

(Instrument is a development of Rich-Roth Laboratories, Dept. CP, 673 Connecticut Blvd., E. Hartford 8, Conn. . . . or for more information check CP 3011 on handy form, pages 2 and 3.)

Automatically, accurately controls liquid additions to process . . .

meter cuts flow when proper amount has been delivered, works with more than 100 industrial fluids

Accurate, automatic control of the quantity of liquid added to batches or fed into process can be achieved with Model 432 Auto-Stop Meter. It consists of an auto-stop register mounted on an accurate nutating disc meter. Register is coupled to a quick-closing valve. Meter automatically shuts off the valve when it has delivered the number of gallons or pounds for which it was set.

Operation is simple. Tripping mechanism is first set by pushing buttons on the register until number of gallons desired appears on numeral wheels just above the buttons. Register is then cleared by turning a reset handle until a second set of numbers reads zero. After opening valve, operator is free to take up other duties — tripping device cuts off the flow when the set quantity has been delivered. Large numerals on the face of the meter keep pace with flow, provide a visual check when delivery is finished. A

CHEMICAL PROCESSING

small shuttered totalizer also on the face of the meter keeps cumulative totals. Daily, weekly, or monthly production or inventory figures can be recorded with it.

Flow can be stopped instantly at any time by pressing an emergency stop button on the register. This does not affect meter reading or delivery setting. Delivery can then be either 1) continued by reopening valve, or 2) adjusted to some new amount.

Model 432 is available in 1, 1½, and 2-inch sizes. Capacities range from 5 to 100 gallons per minute. Calibrating "gear shifter" is built-in and permits allowance for viscous liquids, or hot or cold operation. The more than 100 industrial liquids which can be handled by the meter include cold, warm, and hot water, syrups, oils, soap solutions, and various chemicals. Limitations are generally those materials which corrode bronze.

(Developed by Neptune Meter Co., Dept. CP, 50 W. 50th St., New York 20, N.Y. . . . or for more information check CP 3012 on handy form, pages 2 and 3.)

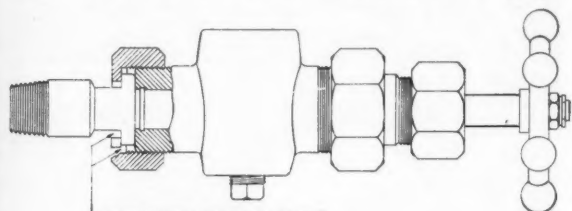
Precision measurements not needed with sight glass assembly that stretches or shrinks to fit . . .

floating connections allow ¾-inch variation in length, have held 9000 psi in tests

Uses: For mounting sight glass gages of any length on storage tanks, processing equipment, boilers, etc. Pressure is no problem in most cases.

Features: Tapped mounting holes in tank need not be located any more precisely than within ¾-inch of gage glass assembly's shank-to-shank measurement. Slight mis-locating of the mounting holes can be allowed for with the ¾-inch play of the gage valve shanks.

Description: "Floating Shank" sight glass is designed in short sections of metal-and-glass facing which are bolted to a machined backing of the proper



CLEARANCE PERMITS 0.20" MAXIMUM ADJUSTMENT

Sectional drawing shows clearance which gives positive seal, yet permits length adjustment for mounting

length. Though there is no theoretical limit to the length of sight glass which may be built in this way, design of associated equipment usually does not call for more than 12 to 18 feet.

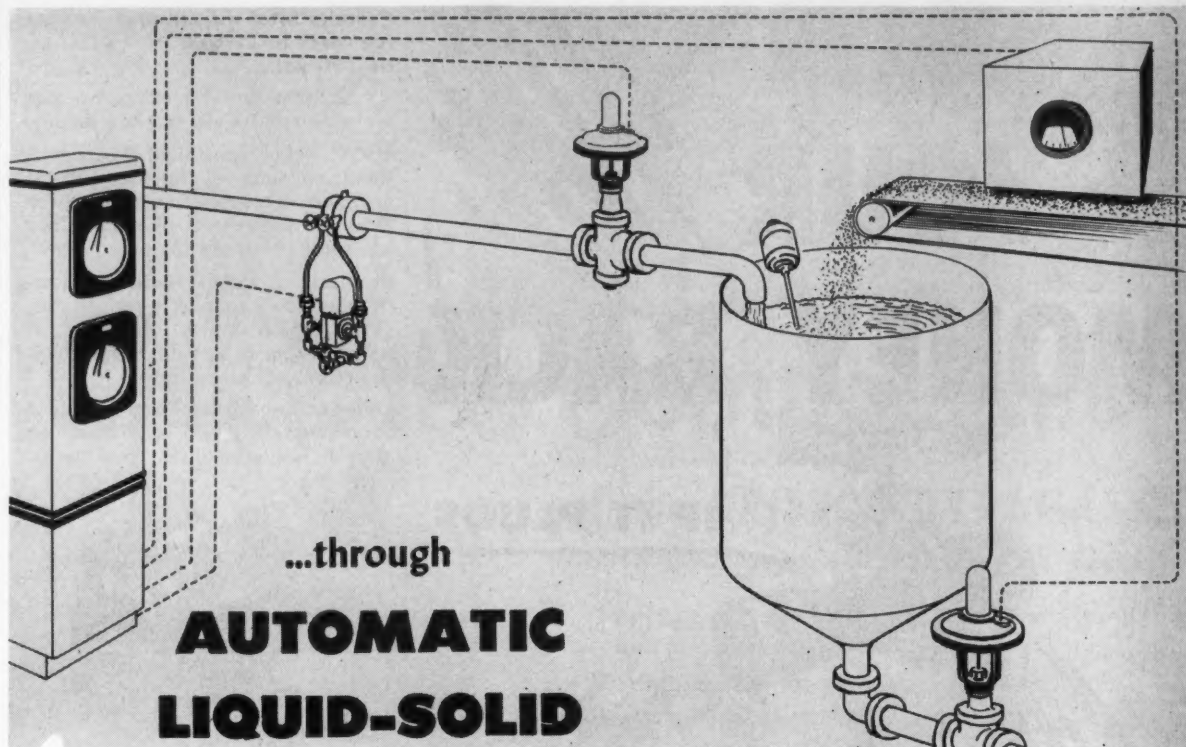
Shanks of the gage valves are threaded for ¾-inch. The other end of the shank fitting is machined to a flange with smooth surfaces. This flange is held to the rest of the fitting by a union-nut with enough clearance to permit 0.20-inch of play at any right angle to the axis. Since both shanks are so mounted, a total of 0.40-inch or just over ¾-inch of play are available to align the shanks with mounting holes.

Present gages are rated up to about 3000 to 6000 psi. Similar gages, however, have been tested at 9000 psi without leaking. Reports of a two-year field test showed unanimous approval by the users.

(Developed by Penberthy Injector Co., Dept. CP, Detroit 2, Mich. . . . or for more information check CP 3013 on handy form, pages 2 and 3.)

JUNE, 1952

NEW OPPORTUNITIES in continuous processing



...through **AUTOMATIC LIQUID-SOLID RATIO CONTROL...by Foxboro**

Many a troublesome batch process can be converted to continuous operation — with resulting economies and product improvement — by installing Foxboro Liquid-Solid Ratio Control. This simple, accurate system has been thoroughly proved in use on such processes as the extraction, dissolving, or reaction of materials.

Typical examples include the proportioning of acid feed to phosphate rock in the production of phosphate fertilizer, and the proportioning of water to the feed of cossettes (sliced beets) in the production of beet sugar. Wherever ratio-ing the quantity of liquid reagents to a varying rate of solid chemicals being delivered by a conveyor belt is desirable, this fully automatic system simplifies the operation and improves the efficiency of the process.

In this system, a Foxboro Recording Controller receives a continuous measurement of weight of the solid material (from a Foxboro Pneumatic Motion Transmitter incorporated in a Merrick Weightometer located above the conveyor belt), and also receives a continuous measurement of liquid flow from a

Foxboro d/p Cell or mercury manometer. The desired ratio between solid and liquid can be readily set by a dial in the instrument which, in turn, controls the liquid flow.

The efficiency-boosting advantages of Foxboro Ratio Control are now being realized by a number of leading companies. If you have a similar problem, learn how these advantages may be achieved for your plant. Write for engineering data. The Foxboro Company, 1906 Neponset Ave., Foxboro, Mass., U.S.A.

This illustration shows Foxboro Ratio Control at a large beet sugar plant. A Merrick Weightometer equipped with a Foxboro Pneumatic Motion Transmitter appears in the foreground.



FOXBORO

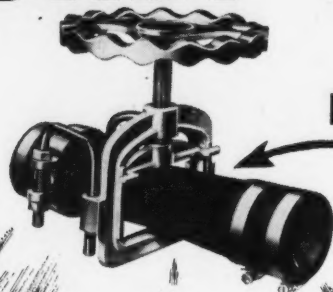
REG. U. S. PAT. OFF.

COORDINATED CONTROL

FACTORIES IN THE UNITED STATES, CANADA AND ENGLAND

When inquiring check CP 3014 on handy form, pgs. 2-3

YOUR MONEY BACK



IF IT PLUGS

Basically, the Flex-Valve is just a piece of flexible tubing and a clamp to squeeze it shut. It can no more clog than a length of pipe. So, if you can clog one of them in normal service, just tell us, for the "incredible-but-true" record, how in the world you did it, and we'll send your money back.

Flex-Valves have solved thousands of valving headaches—in as many plants as there have been installations made. They can handle anything that flows, including aerated or fluidized solids. They close bubble-tight over 1/8" solids. Open, the flow is straight-in-line with the service piping, and completely unobstructed. There are no moving parts in contact with the lading fluid. Available in both natural and synthetic materials for every corrosive or abrasive service.

Complete details on this unique principle of control valving in slip-on, flanged, and air-motor operated types are available on request. Ask for Bulletin 500—without obligation, of course.

Farris FLEXIBLE VALVE CORP.
306 COMMERCIAL AVE. • PALISADES PARK, N. J.

1192

When inquiring check CP 3015 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

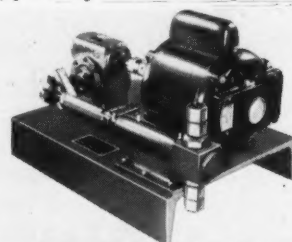
Permits feed adjustment for rates to 12 gph at 300 psi . . .

simplex or duplex pump has calibrated scale for rate setting

Uses: For controlled feeding of small amounts of liquid. Typical case is boiler water treatment where rates do not exceed 12 gallons per hour nor pressures 300 psi.

Features: Pump heads are interchangeable—simplex is readily converted into a duplex. Feed rate is set according to a calibrated scale on the eccentric drive.

Description: Model 100 Chemical Proportioning Pump is powered by a 1/4 horsepower, 1750 rpm motor.



Measures only 16 x 12 inches

Speed is reduced, by a gear reducer, to 70 strokes per minute. This gives a maximum of 12 gallons per hour.

Pump body is cast iron. Piston, double ball check valves, and valve springs are stainless steel. Packing is designed to take up wear automatically, but can be quickly changed by removing cap nut on the face of the pump head. Mounted on a channel iron base, pump measures 16 x 12 inches. Weights: simplex—41 pounds, duplex—47 pounds.

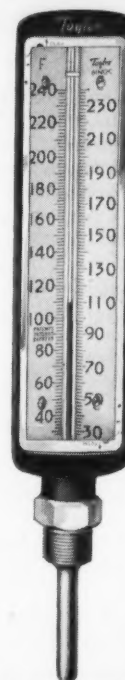
(Product of Neptune Pump Manufacturing Co., Dept. CP, 4912 N. 6th St., Philadelphia 20, Pa. . . or for more information check CP 3016 on handy form, pages 2 and 3.)

112 pages of measuring and test equipment

Constant temperature equipment is shown in 112-page catalog. Test and measuring equipment is intended for laboratory and production use. Items include baths for oil and water, ovens, sterilizers, incubators, electric furnaces, and portable constant temperature rooms. Catalog also offers temperature and humidity conversion tables.

"Constant Temperature Equipment" is issued by The Electric Hotpack Co., Inc., Dept. CP, Cottman Ave. at Melrose St., Philadelphia 35, Pa. When inquiring specify CP 3017 on handy form, pages 2 and 3.

IT'S SAFER TO BUY TAYLOR THERMOMETERS



WHEREVER your equipment needs a dependable temperature check, it's safer to specify Taylor Industrial Thermometers. Then you'll know you're getting the lifetime accuracy and performance you paid for.

The name "Taylor" means "Accuracy First" the world over. Thousands of Taylor mercury-in-glass Industrial Thermometers now in use speak for themselves in terms of trouble-free performance. And of course, every Taylor Instrument is backed up by Taylor's complete national sales service.

Taylor Industrial Thermometers are available in a wide variety of bulb forms, stem angles, and temperature ranges within limits of -40° to plus 950°F. or equivalent Centigrade.

All ranges up to 750°F. have exclusive 3-times-easier-to-read BINOC* tubing; tubes aged for lasting accuracy; built-in shock resistance and many other features.

Write for Taylor Catalog E.
Taylor Instrument Companies
Rochester, N. Y., and
Toronto, Canada.

* Registered Trade-Mark

**TAYLOR INSTRUMENTS
MEAN ACCURACY FIRST**

When inquiring check CP 3018 on handy form, pgs. 2-3



**LIQUID LEVEL and
INDUSTRIAL CONTROLS**

— Write for Catalog —

B/W CONTROLLER CORPORATION
2204 East Maple Road, Birmingham, Michigan

FIRST IN THE FLOATLESS CONTROL FIELD

When inquiring check CP 3019 on handy form, pgs. 2-3

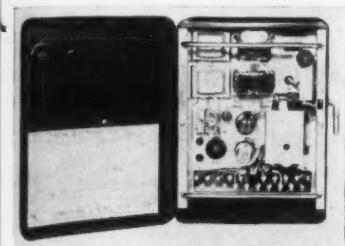
CHEMICAL PROCESSING

Control for gas or oil burners provides maximum protection from explosion . . .

circuit causes instantaneous shut-down upon any failure within equipment

Uses: For automatic starting and programming control of gas, oil, and combination gas-oil burner equipment. It is used with other equipment to protect burner installations from hazard of flame failure.

Features: Control responds instantly to failure of flame, resulting in fuel cutoff in 2 to 4 sec. If any portion of equipment fails, circuits will cause immediate shut-down and prevent start-up under unsafe condition.



Cuts off fuel in 2 to 4 sec

ing is accomplished through high torque synchronous motor. Cam assembly construction permits many programming variations. Control is easily accessible and built to withstand vibration. Instrument has standard electrical characteristics.

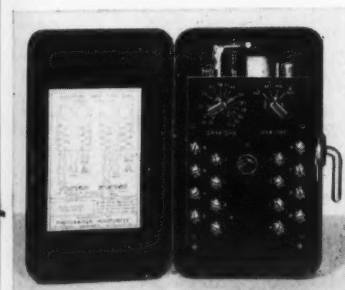
(Produced by Combustion Control Corporation, Dept. CP, 77 Broadway, Cambridge 42, Mass. . . . or for more information check CP 3020 on handy form, pages 2 and 3.)

Electronic timer furnishes four fundamental types of timing in single unit . . .

wide flexibility may be utilized by changing connections to terminal board

Uses: For timing of industrial repeat-cycle operations or similar uses.

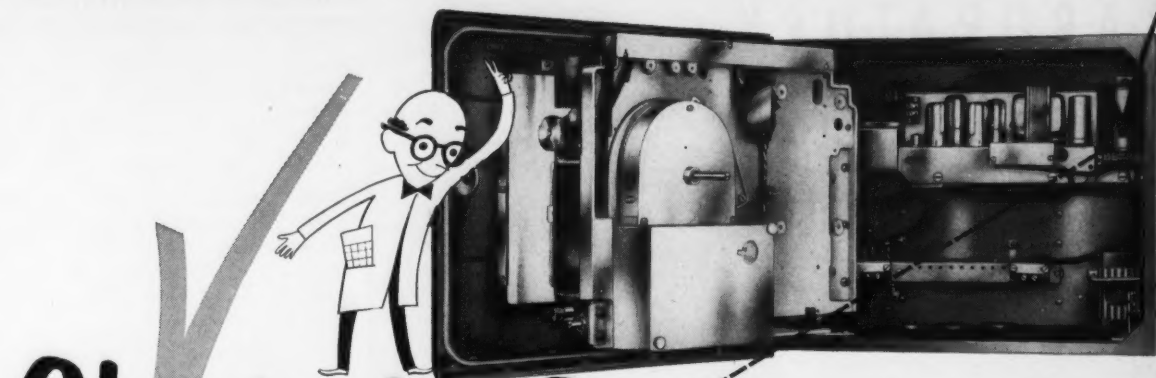
Features: Instrument provides four basic types of timing: interval, delayed action, automatic, and programming. These and other combinations of principal types may be obtained by changing external connections to terminal board.



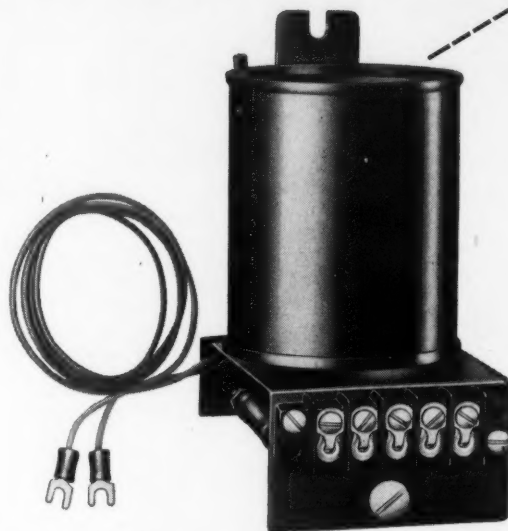
Changes in line voltage do not affect timer

for fluctuations in the line voltage. One relay and one vacuum tube are used. Replacement of vacuum tube does not alter accuracy of 2%. Unit weighs 8 lb and operates from standard 115 or 230 volt AC power source.

(Manufactured by Photoswitch, Inc., Dept. CP, 77 Broadway, Cambridge 42, Mass. . . . or for more information check CP 3021 on handy form, pages 2-3.)



Check the Components



of the BRISTOL DYNAMASTER Continuous-Balancing Electronic Recorder

The Dynamaster is a superior recording and controlling instrument because every component part is superior.

Take the Syncroverter* Switch; pictured above.

This vibrator-type d-c to a-c converter incorporates so many unique improvements that many scientists, laboratories, and manufacturers are using it in their own devices.

Among its advantages are:

- ✓ Extremely long life
- ✓ Shock-proof and vibration-proof
- ✓ Hermetically sealed against dust and corrosion.
- ✓ 1000-to-1 discrimination against external stray currents
- ✓ Dual reeds automatically cancel out thermal-induced emf
- ✓ Has switching symmetry of better than 1/2 of 1 percent.

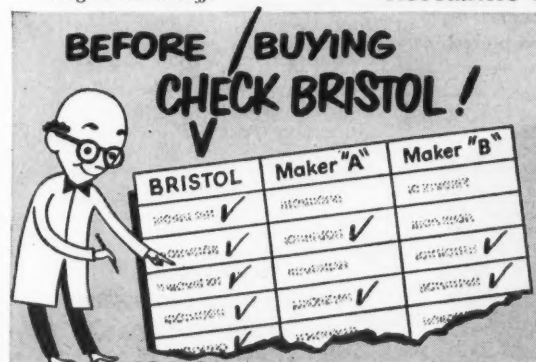
BRISTOL

The Syncroverter Switch is only ONE of the important features of the Dynamaster electronic recorder For full information, send for Catalog No. P1245.

The dependable Guidepost of Industry

*Reg. U. S. Pat. Off.

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS



THE BRISTOL COMPANY
141 Bristol Road
Waterbury 20, Conn.

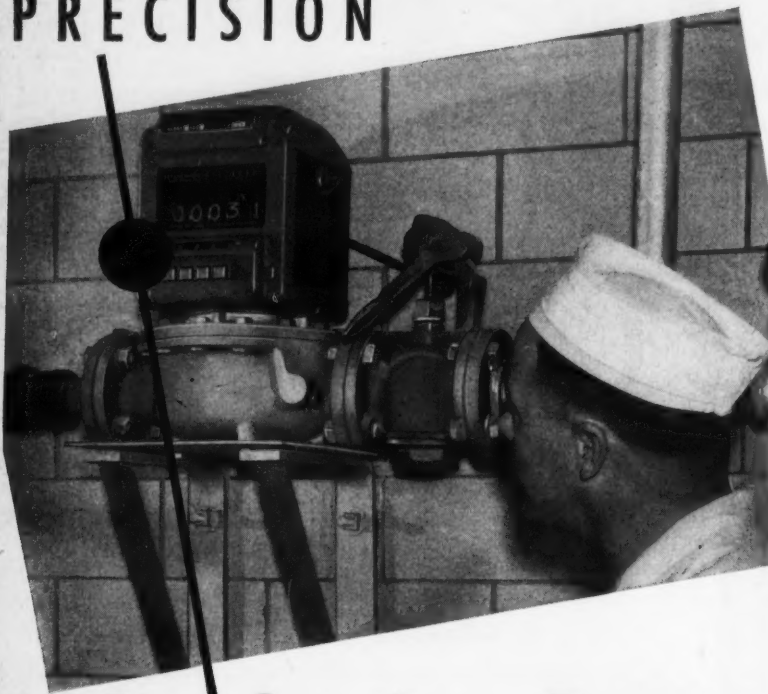
Please send catalog giving details of Dynamaster performance to:

NAME _____ TITLE _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____



When inquiring check CP 3022 on handy form, pgs. 2-3

LABORATORY PRECISION



at Production Rates

WITH



Batch mixing with laboratory precision is automatic with these Neptune Auto-Stop liquid meters. You simply push buttons to set the quantity of ingredients required by formula, open the valve, and the meters do the rest. They pay for themselves by eliminating spoilage, spillage, over-filling and the fuss and muss of gauge sticks, pails or batch tanks.

The easy to read registers give you accurate, quick cost accounting figures too. The Auto-Stop is only one of many Neptune meters available for handling over a hundred industrial liquids—including water, syrups, brines, oils and many chemicals. Famous for simplicity, sustained accuracy, and low maintenance. Telephone or write our nearest branch for quick information.

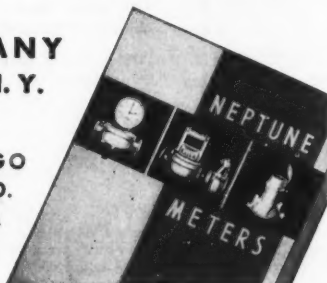
SEND FOR NEW BULLETIN 566-H P. .

... a gold mine of information that helps select the right meter for your process.

NEPTUNE METER COMPANY
50 West 50th St. • New York 20, N. Y.

Branch Offices

ATLANTA • BOSTON • CHICAGO
DALLAS • DENVER • NO. KANSAS CITY, MO.
LOS ANGELES • LOUISVILLE • PHILADELPHIA
PORTLAND, ORE. • SAN FRANCISCO
Canadian Factory: TORONTO 14, ONT.



When inquiring check CP 3023 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

**Senses and transmits
pressure or force
digitally . . .**

magnetic field-vibrating wire device is accurate to 1 in 2000

Uses: For sensing and transmitting pressure or force directly in digital form. Works well in telemetering systems, data transmission systems, and digital computers.

Features: Accuracy is 1 part in 2000.

Description: Models 500, 501, and 502 Digitran employ a vibrating wire in a magnetic field. Frequency



Produces a frequency signal

of vibration is governed by the applied pressure, force, or other variable. This frequency, fed to electronic counters is registered in standard units.

Model 500 is 1 x 1 x 3" and is designed for telemetering applications where temperature control is exerted externally. Models 501 and 502 contain built-in temperature regulation and are stable over a wide range of ambient temperatures.

Model 502 is further provided with two Digitran elements — one to provide a reference, one to provide a signal. Final conversion of signal to the desired units is accomplished by beating the signal with a stable oscillator frequency in a heterodyne unit.

Entire auxiliary set-up (power supply, heterodyne unit, etc) is available for mounting on a 3 1/2 x 9" panel.

(Developed by Wright Engineering Co., Dept. CP, 180 E. California St., Pasadena 1, Calif. . . . or for more information check CP 3024 on handy form, pages 2 and 3.)

See the helpful
PROCESSING & ENGINEERING
DATA section
on pages 184, 186, 188, & 190.

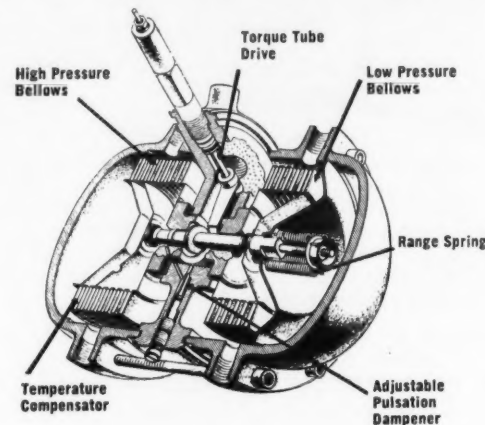
BARTON FLOWMETERS with

DUAL

STAINLESS STEEL

**RUPTURE-PROOF
BELLOWS**

INSURE LOWER MAINTENANCE COSTS



ALL MAJOR SOURCES OF TROUBLE inherent in other differential-pressure meters ARE ELIMINATED IN BARTON Rupture-Proof FLOWMETERS!

NO LIQUID SEALS TO LOSE—corrosive and volatile liquids are handled without seal pots, thus reducing installation and upkeep costs.

NO MERCURY USED—hence, no costly losses due to leakage or theft, and no contamination of liquid being handled. Likewise, installation can be made without accurate leveling.

EASY TO OPERATE—Unskilled personnel can put a BARTON in operation without danger of damage to the meter.

CLEANING ISN'T NEEDED—a BARTON drains or vents itself completely. No pockets to trap condensates. No floats, chains, or links to corrode. Assures permanent positive accuracy

for measuring

FLOW • LIQUID LEVEL • DIFFERENTIAL PRESSURE
WRITE FOR DETAILS IN BULLETIN 11C4 TODAY!

**BARTON
INSTRUMENT CORPORATION**

1437 SO. EASTERN AVE., LOS ANGELES 22, CALIF.

When inquiring check CP 3025 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

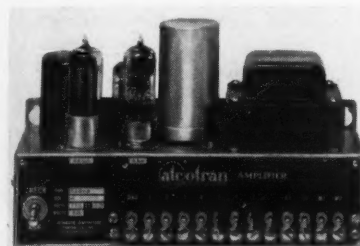
High sensitivity servo amplifier is designed especially for small input . . .

compactness of unit allows surface or wall mounting of chassis with all component parts

Uses: For driving servo mechanisms from extremely small alternating current input potentials such as those generated by differential transformers, AC potentiometer circuits, and resistive and inductive bridge circuits.

Features: Has sensitivity of approximately 500 motor driven positions when used with a 53 rpm servo motor and on manufacturer's transformer. Unit is extremely compact with all component parts mounted on a chassis suitable for surface or wall mounting.

Description: High gain, Class A amplifier consists of a low impedance transformer input to a dual triode, two-stage voltage amplifier tube which drives a pentode power amplifier tube having one motor winding in its anode circuit.



Chassis suitable for surface or wall mounting

DC voltage for the amplifier is obtained from a transformer and a full wave rectifier tube. DC filtering components are in a plug-in unit mounted on top of the amplifier for ease of replacement. A potentiometer in the grid

of the pentode provides control of the amplifier gain. Power input to the unit is isolated from ground allowing the input circuit to be adequately grounded and decrease the possibility of stray pickup.

(Development of Automatic Temperature Control Co., Inc., Dept. CP, 5200 Pulaski Ave., Philadelphia 44, Pa. . . or for more information check CP 3026 on handy form, pages 2 and 3.)

Shows condition of insulation in terms of megohms safely, quickly . . .

portable tester is a direct reading DC microammeter and is ready for use with any 115v AC outlet

Uses: For detecting complete insulation breakdowns, leakage through insulation in electrical devices, systems.

Features: Unless the equipment has a very large electrostatic capacity, reading becomes stable in a maximum of two seconds. Meter is calibrated directly in megohms, and will measure insulation in resistance up to 1000 megohms; no calculations are necessary.

Description: Circuit consists of a small Sola constant voltage transformer, a step-up transformer, and a rectifier-condenser network that delivers a steady filtered voltage of 1500v direct current. The Tesco Insulation Tester needs only to be plugged in to any 115v AC outlet to be ready for use. Tester is housed in a sloping front cabinet measuring 8 x 10 x 8" high, and is provided with a carrying handle. Complete device, including leads, weighs 14 lb.

(Development of The Eastern Specialty Co., Dept. CP, 3615-19 North 8th St., Philadelphia 40, Pa. . . or for more information check CP 3027 on handy form, pages 2 and 3.)



C. J. SMOLINSKE, Honeywell Supplies Man in the Indianapolis area, helps check connections of special purpose thermocouple wire on a jet engine test in the CAA Laboratories, Indianapolis. Highly useful in this and many other applications are the new thermocouple wires recently added to the ever-expanding line of Honeywell supplies. An exceptionally wide range of temperature is now covered by new wires with the following insulations: plasticized vinyl chloride insulation for service from -20 to 225°F .; non-impregnated glass insulation for use up to 1200°F .; and fibrous silica insulation for temperatures as high as 2000°F .

Special purpose wires are but one part of the complete supplies service afforded by the HSM Plan. In literally



● Important Reference Data

Write for new Pyrometer Supplies Buyer's Guide No. 100-4

When inquiring check CP 3028 on handy form, pgs. 2-3

Here's why
it pays
to
know
your

HSM

HONEYWELL SUPPLIES MAN

hundreds of ways, this plan can add new convenience and economy to *all* your pyrometer supplies buying! Find out now, how planned buying—the *HSM way*—can assure you the best in quality, availability and price. Your local Honeywell Supplies Man will be glad to explain how this plan can work for you. Call him today . . . he is as near as your phone.

MINNEAPOLIS-HONEYWELL REGULATOR Co., Industrial Division, 4421 Wayne Ave., Philadelphia 44, Pa. Stocking points in Philadelphia, Cleveland, Chicago, Atlanta, Houston, Los Angeles and San Francisco.

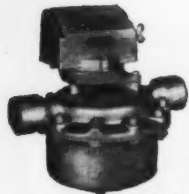
MINNEAPOLIS
Honeywell
BROWN INSTRUMENTS

First in Controls

Rockwell Industrial Meters

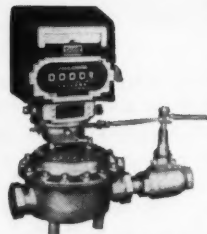


Get fast, accurate FORMULA and COST CONTROL



Model ER-13 1" connections, with small reset register.

Model ER-15 1 1/2" connections, with printing register and quantity control valve.



You can batch mix, blend or process most any liquid through Rockwell meters. You can make every formula letter perfect. And on repetitive operations you can do it automatically with the addition of a Rockwell Quantity Control valve to the meter hook-up.

Cost control is another plus value resulting from the use of these meters. Losses quickly show up. If they cannot be corrected, the meter records can be used for basic accounting to permit tax reductions and other processing cost calculations.

Get full facts now. Use the coupon or write for bulletin OG-400.

You Can RELY ON ROCKWELL

... to accurately measure most any liquid that can be piped—oils, chemicals, paints, liquors, solutions, etc. Complete list sent on request.



SEND THIS COUPON TODAY

ROCKWELL MANUFACTURING CO., PITTSBURGH 8, PA.

A-5210

Gentlemen:

I am interested in measuring _____

(Name of Liquid) _____

Pipe Size _____ Working Pressure _____ psi Temperature _____ °F. max.

Max. Flow Rate _____ gpm Min. Flow Rate _____ gpm

YOUR NAME _____

COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____

When inquiring check CP 3029 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

**Allows rapid heating;
attains straight-line
control . . .**

variable proportion band runs from 1 to 3 per cent full scale

Uses: Indicates and controls temperature of small furnaces, extruding and heat setting equipment.

Features: Provides straight-line control even when rapid heating rates, small heating capacities, or abnormal process lags are encountered.

Description: Pyr-O-Vane controller is a time-proportioning indicating milli-voltmeter controller. It can be applied to electrically heated, or fuel fired process equipment and the instrument is designed to provide essentially constant (straight-line) temperature.

Variable proportion band allows settings between one and three per cent of full scale. Setting can be changed with a calibrated adjustment. Set of change gears, supplied with each instrument, provides a choice of six cycle times to meet varied process requirements. Change in cycle time is easily made.

Case is flush- or surface-mounting, has six-inch indicating scale and plug-in galvanometer and control units.

(Product of Brown Instruments Div., Minneapolis-Honeywell Regulator Co., Dept. CP, Wayne & Windrim Aves., Philadelphia 44, Pa. . . or for more information check CP 3030 on handy form, pages 2 and 3.)

**Measures speeds from
0 to 100,000 rpm**

Two-page technical data sheet outlines information on three-range, single-head, fixed type tachometers. Instrument is designed for speed measuring applications where there is a necessity for a wide range of speed measurement on a continuously indicating switchboard.

Unit is pictured and described in detail. List of outstanding features is included in data sheet.

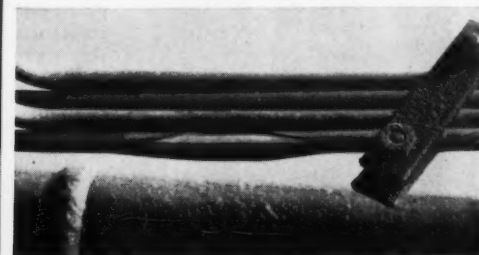
Typical applications are in turbine tests, acceleration test stands, process control, extrusion processes, and in similar services. Unit is capable of indicating speeds from 0 to 100,000 rpm. Tabular listing provides for selection of instrument in units other than rpm. Data Sheet 42P is issued by Metron Instrument Company, Dept. CP, 432 Lincoln St., Denver 9, Colo. When inquiring specify CP 3031 on handy form, pages 2 and 3.

Dekoron
PLASTIC ARMORED METAL

**Instrument Tubing
resists H₂SO₄ fumes
three times longer**

- Long life
- Low cost
- Easy to install

Dekoron plastic armored metal tubing is drastically reducing tubing replacement costs in chemical processing plants, refineries and factories all over the country.



For example, take a close look at the un-retouched photograph of instrument lines outside an iso-propanol plant. Sulfuric acid and iso-propanol destroyed ordinary tubing in less than a year. These Dekoron lines are still in good condition after 3 years. And note how the plastic coating has been cut back on the tube at the bottom to show that there is no corrosion whatsoever of the metal tube—even after 3 long years!

So if your instrument tubing is subjected to corrosive fumes . . . to salt air, destructive condensations — write for your copy of "Dekoron—a better kind of corrosion-resistant instrument tubing." It tells all about Dekoron tubing . . . also tells how Samuel Moore & Company coats *your* instrument tubing to reduce replacement costs. A-5549

Dekoron tubing

**SAMUEL MOORE & COMPANY
Dekoron Tubing Division
MANTUA, OHIO**

When inquiring check CP 3032 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Maintenance is minimized in valve equipped with interchangeable seat rings . . .

double-seated diaphragm regulating valve has renewable self-aligning guides

Uses: For regulating and controlling quantities and pressures in piping systems.

Features: Renewable interchangeable seat rings are machined so that they can be removed and replaced without removing the valve body from the pipe line. Top and bottom self-aligning guides prevent binding. Flanged stuffing box with wide opening in the yoke is designed for quick and easy maintenance. Valve action is easily reversed in the field.

Description: A choice of four standard trim models — Types 316, plain or stellited, 440C hardened stainless steel, as well as bronze trim. Superstructure is of cast



Available with interchangeable seat rings

iron parts housing a strong, flexible, molded diaphragm, with a stem accurately machined and guided with an oilite bushing. Four sizes of superstructures are available, with from 50 to 210 square inches of effective area, designed to operate on 3-15 psi air, used with standard instrument controllers. Cooling bonnets are available for temperatures over 500°F and under 30°F. Valve is available in sizes

from 1½ to 10", for pressures up to 600 psi, with screwed (1½ and 2") and flanged (1½ and 10") ends.

(Product of the Leslie Co., Dept. CP, 308 Delafield Ave., Lyndhurst, N. J. . . or for more information check CP 3033 on handy form, pages 2 and 3.)

Valve dial permits adjustment to 10 positions

Adjustable-flow valves are described in four-page catalog. Flow rate can be changed to any of ten adjusting points. Valve flow curve may be characterized to suit different constants in pressure, flow suction, or discharge resistance occurring at minimum, maximum, or in-between capacities. Valves are serviceable at pressures up to 25 psi and temperatures to 300°F. Straight-through or angle type valves are available in either single or dual valve assembly.

Valves may be used for accurate control of gas and air flow to burners on industrial furnaces, ovens, and kilns. Control valves cannot be shut off completely. Approximate gas and air capacities are tabulated for various pressure drops. Dimensions are included with engineering drawings of single and dual valve assemblies. Valve body and piston are made of cast iron. Cat 713 is issued by Hauck Manufacturing Co., Dept. CP, 124-136 Tenth St., Brooklyn 15, N. Y. When inquiring specify CP 3034 on handy form, pages 2 and 3.

WHY Spence Regulators Outlast The Field

SECO METAL SEATS AND DISCS

— Durable SECO Metal resists wiredrawing. More than twenty years of experience in thousands of installations has failed to produce a single case where SECO Metal has been cut by steam.

PACKLESS CONSTRUCTION —

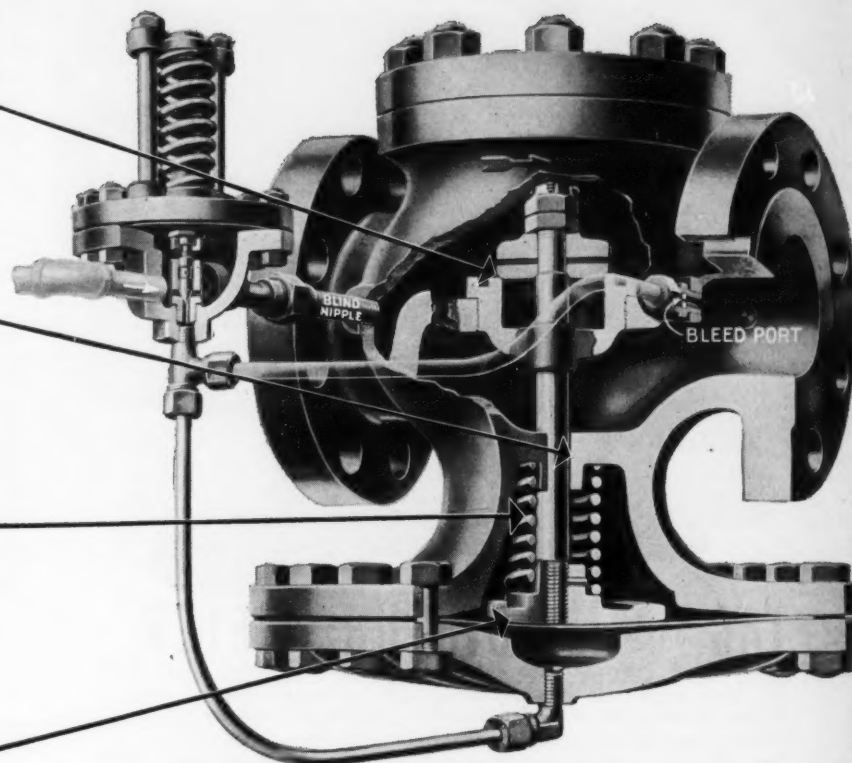
All Spence main valves and most pilots are built without stuffing boxes. This minimizes friction . . . eliminates much time-consuming maintenance.

SPRING OUT OF PATH OF STEAM —

The spring in the Spence Regulator is out of the path of the steam or other fluid flowing through the valve. It operates at low unit stress for exceptionally long life.

LARGE BALANCED DIAPHRAGM —

Spence metal diaphragms, under usual conditions, never require replacement. Spence Regulators have few moving parts and those few are ruggedly constructed and seldom require attention.



Spence Type EQ back pressure regulator-operation of main valve is controlled by a sensitive pilot to regulate the initial pressure. Same pilot is used with all sizes of main valves.

The features shown above explain why you profit on every important count with Spence Pressure and Temperature Regulators.

Learn more about these and many other advantages of Spence Regulators by sending for Bulletin 350.

DURABILITY

ACCURACY

MAINTENANCE

Spence Regulators perform dependably year after year.

You can be sure of accurate control for the life of the regulator.

You don't need expensive repairs or special maintenance. That means less down-time, less time and money wasted on replacement of parts.

SE-110

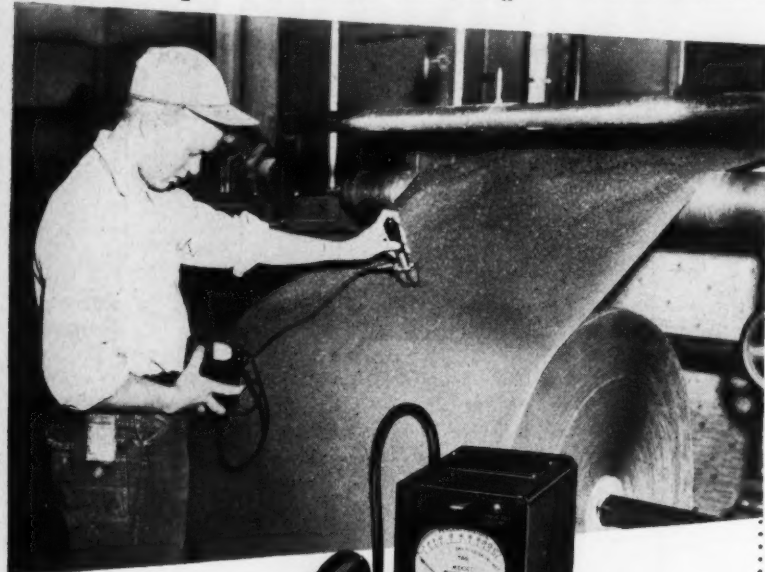
SPENCE ENGINEERING COMPANY, INC.
WALDEN, NEW YORK

Spence

When inquiring check CP 3035 on handy form, pgs. 2-3

Portable MOISTURE METER

insures product uniformity...cuts costs!



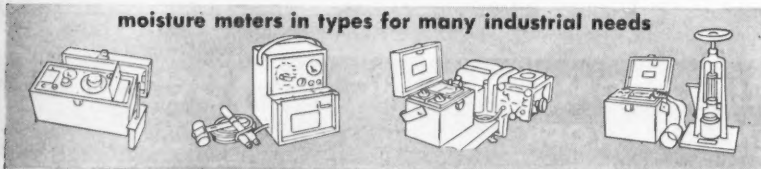
TAG Midget MOISTURE METER

In the manufacture of coated abrasives, too much moisture in the backing material during processing, or too little moisture, can have costly consequences. Non-uniform flexing... paper delamination... mold... or even bonding failures. So this leading manufacturer checks moisture content every step of the way with simple, accurate TAG moisture meters. They state, "portable TAG meters have enabled us to attain a more uniform product, and eliminate product losses due to improper moisture content."

In many other products and processes, too, incorrect moisture content is costing real money. Why not consult with TAG on your moisture problems now. Or, ask for literature on the various types of moisture meters available... WESTON Electrical Instrument Corporation, 614 Frelinghuysen Avenue, Newark 5, N. J., *manufacturers of Weston and TAG instruments.*

WESTON *Instruments*

moisture meters in types for many industrial needs



When inquiring check CP 3036 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

Permits changing thermocouples in 1 sec...

they snap in and lock at the desired angle

Uses: For checking surface and subsurface temperatures.

Features: Quick change of range with thermocouple element takes only about one second — the thermocouple snaps into place.

Description: Pyro Surface Pyrometer is available with a selection of 14 different types of thermocouples and extension arms to meet all types of surface-temperature measurement problems. Equipped



Five ranges; 14 tips

with a "Quick-Change Connector" it permits thermocouples to be snapped and locked into extension arms in a matter of a second, without any tightening needed. These thermocouples are interchangeable without any adjustment or recalibration.

Swivel may be locked in desired position and it will not come loose during measurements.

Reading is shown on a 4 3/4-inch

Really New!

A FLEXIBLE MANOMETER



Just Roll It Up and Tuck It Away

No more cumbersome 2', 3', or 4' manometers to cart around. This new flexible Dwyer Manometer will fit into your pocket or the corner of your service kit. This revolutionary instrument is fabricated of tough, vinyl plastic that will serve for years. The plastic scale is firmly supported between the tubes. Standard ranges from 8 in. to 6 ft. of water or mercury. It is highly accurate, easy to read and convenient. Nothing like it for field work. Write for complete information.

F. W. Dwyer Mfg. Co.

335 South Western Avenue, Chicago 12, Illinois

When inquiring check CP 3037 on handy form, pgs. 2-3

"LIQUIDS WORTH STORING ARE WORTH MEASURING"

with a

LIQUIDOMETER

- FOR GAUGING LIQUIDS OF ALL KINDS
- 100% AUTOMATIC
- APPROVED BY UNDERWRITERS' LABORATORIES

Tank Gauge



THE LIQUIDOMETER CORP.
38-18 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

When inquiring check CP 3038 on handy form, pgs. 2-3

CHEMICAL PROCESSING



INVESTIGATE STACON
CHEKCHART your Temperature CONTROL INVESTMENT

Before you select a Temperature Regulator, compare low-cost Stacon with the rest. No other regulator has as many features or offers as many advantages as a Farris Stacon.

PROVE IT!

Make this Chekchart Test

	Farris Stacon	Air Operated	Self Operated
• Dirt Proof — Hermetically Sealed?	Yes	.....	.....
• Extreme Accuracy?	$\pm 1^\circ$	.....	.....
• Packing or Glands to Leak?	No	.....	.....
• Drop-tight Shut off?	Yes	.....	.....
• Vapor-steam Energized Super Power Pilot?	Yes	.....	.....
• Supervision—Maintenance?	None	.....	.....

Write for Stacon Bulletin 50-1000. It contains complete information on the most sensitive, accurate, economical temperature regulator available . . . anywhere.

Farris Stacon Corp.

206 COMMERCIAL AVE. PALISADES PARK, N. J.

When inquiring check CP 3039 on handy form, pgs. 2-3



Hermetically Sealed Instruments by Cramer
 TIME DELAY RELAYS
 CIRCUIT RECLOSING RELAYS
 RUNNING TIME METERS

A new series of highest quality, rigidly tested instruments enclosed in hermetically sealed containers of approved type to meet military and civilian requirements. These instruments are compact, dependable in every way and designed for efficient performance under specified conditions of altitude, acceleration, inclination, vibration, humidity, salt spray, dust, fungus, etc. They are typical examples of advanced Cramer Time Control Engineering to meet industry's constantly expanding needs. Write for special Bulletin No. 4000 A.

the R. W. CRAMER CO., Inc.
 BOX 9, CENTERBROOK, CONN.

When inquiring check CP 3040 on handy form, pgs. 2-3

JUNE, 1952

PROCESS INSTRUMENTATION

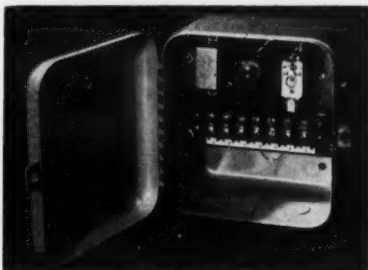
dial calibrated in one of five temperature ranges. Cold end compensation is enclosed in the steel meter housing. This junction and the meter are dust-, moisture- and shock-resistant. Meter will withstand rough usage.

(Product of The Pyrometer Instrument Co., Inc., Dept. CP, Bergenfield, N. J. . . . or for more information check CP 3041 on handy form, pages 2 and 3.)

Controls five-amp current with a signal of only two microamp . . .

can use unlimited leads to any source of 0 to 10 megohms

Uses: Basically, this relay provides on-off control of power circuits with a very small signal-current drain. It can be applied to



Life of relay is indefinitely long

control of temperature, pressure, etc. from signals provided by many existing instruments.

Features: Control of a five-amp circuit is achieved with a two micro-amp or less—a current amplification of 2,500,000.

Description: Model SS Electronic Pilot Relay employs a type TT-1 cold cathode tube. Having no filament, the tube has an indefinitely long life. Tube provides great sensitivity, too, and enables the use of very long leads even with current sources with high (ten megohms) resistance.

Housed in an 18-gage drawn steel case, the entire relay is only 7x6x4 inches. Relay contacts are single pole, double throw—jeweled light indicates whether relay is on or off. Power consumption is two watts when operating on a 115 v, 60 cps line (with one side grounded). Other power specifications can be furnished on order.

(Product of Haledy Electronic Company, Dept. CP, 57 William Street, New York 5, N. Y. . . . or for more information check CP 3042 on handy form, pages 2 and 3.)



Gallons NOT GUESSES!

BUILDERS Propeloflo
 the ideal propeller-type meter for measuring the actual flow of water in pipelines 2" to 36" and larger.

FEATURES

"VENTURI DESIGN" (in meters 4" and larger) for better velocity distribution at the point where the fluid acts on propeller.

High Accuracy and Wide Range, measuring within $\pm 2\%$ of actual flow from about 10% to 100% of rated capacity.

"Open Upper Limit", temporary overload range of 150% of rated capacity.

As Easy to Install as a valve or fitting.

Low Loss-of-Head, lower than most other types of flow meters.

Secondary Instruments, cable driven or electrically operated, for Totalizing, Indicating and/or Recording flow at nearby or remote locations.

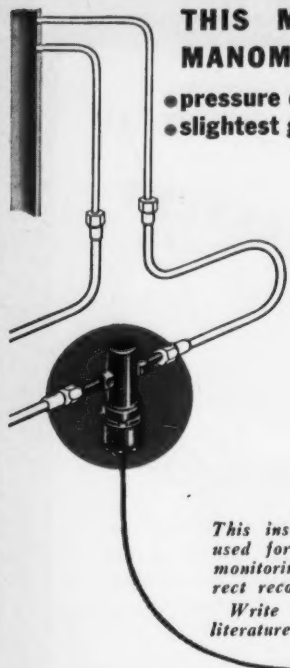
Intermittent Service, where the line occasionally drains dry, Propeloflo registers accurately, without attention, when flow is resumed.

For complete information and Bulletin 380-G2A, address Builders-Providence, Inc. (Division of Builders Iron Foundry), 387 Harris Ave., Providence 1, Rhode Island.

BUILDERS PROVIDENCE
Instruments

Instruments for recording, indicating, and controlling flow, liquid level, pressure, and weight. Chlorinizers—chlorine gas feeders.

When inquiring check CP 3043 on handy form, pgs. 2-3



THIS MICRO-PRESSURE ELECTRONIC MANOMETER-FLOWMETER MEASURES

- pressure differences as small as 1/1,000,000 psi
- slightest gas flow with practically no pressure drop

A new type manometer for critical applications and micro pressures. Highly sensitive, stable, yet lower in cost than less accurate instruments. Gauge tube can be mounted in a bypass outside pipe orifice, producing negligible pressure drop.

Compact low-temperature noble metal gauge tube is unaffected by high pressures. Meter sensitivity remains constant, regardless of lead length.

Dual range logarithmic type scales read directly from 0.001" to 0.1", and 0.1" to 2" water without recalibration between ranges. Response time, less than 1/2 second.

This instrument can be used for master station monitoring or with a direct recording unit.

Write for descriptive literature and prices.



HASTINGS INSTRUMENT COMPANY, INC.

HAMPTON 31, VIRGINIA

DESIGNERS AND BUILDERS OF RADIST AND SPECIAL ELECTRONIC, ELECTRICAL, AND MECHANICAL INSTRUMENTS

When inquiring check CP 3044 on handy form, pgs. 2-3

Simple Accurate Convenient Industrial NOISE SURVEYS



TO: Improve the performance of Industrial Equipment and Household Appliances
Protect Persons Working Near Noisy Equipment
Assist in Design and Construction of Buildings Suitable for Housing Noisy Machinery
Improve Working Conditions of Office and Shop Personnel

The G-R Sound-Survey Meter is a very small, pocket-size, self-contained and inexpensive meter for showing the level of noise. It has a range of 40 to 136 db above the standard reference level. It weighs only 1 pound 11 ounces with batteries. Only two controls, both on the face of the instrument, are used. It can be operated on a bench, a table, a tripod or in the hand.

This meter is proving very useful for all types of preliminary noise-level measurements. It can be operated successfully by anyone. Write For the SOUND-SURVEY METER Bulletin.

TYPE 1555-A Sound-Survey Meter: \$125



GENERAL RADIO Company 275 Massachusetts Ave. Cambridge 39, Mass.

90 West St. NEW YORK 6 920 S. Michigan Ave. CHICAGO 5 1000 N. Seward St. LOS ANGELES 38

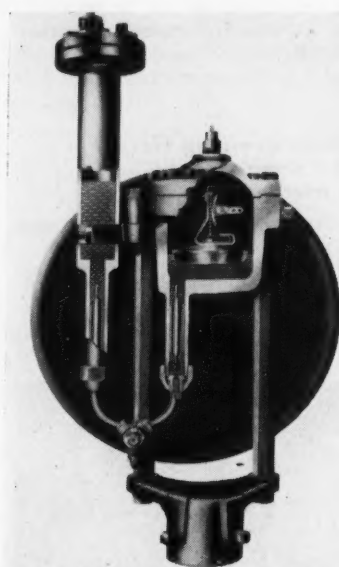
When inquiring check CP 3045 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

Manometer float bearing seals at 5000 psi but has low moment . . .

one of five improvements in flow meter, bearing needs no adjusting, no lubrication

Uses: Series of mercury manometer flowmeters meet a wide variety of rates, pressures, etc. Typical is Type



Principle parts of improved flow-meter can be seen in this cutaway

27 with these specifications: working pressure — 2000 psi, differential ranges (inches of water) 10, 20, 50, 80, 100, 150, 200, 250, 320, 400, 500-5, 10-0-10, 25-0-25, 50-0-50.

Features: Five improvements have been made over previous design. One of the most important is the bearing which transmits float travel. Bearing has low moment, will not bind or freeze. There are no metal-to-metal contacts in it — it needs no lubrication or adjusting.

Description: Five improvements in the design of Flowmeters are: 1) low-moment bearing which retains seal at 5000 psi, 2) gasketless connections to U-tube (unions employ a compressive metal-to-metal seal), 3) calibrated damping, 4) plastic check floats, and 5) straight-line transmission of float movement through the equivalent of a rack and pinion action.

U-tube bend is connected to the legs by two unions. So effective were the metal-to-metal seals of these that even at test pressures of 10,000 psi, mercury did not leak. At the bottom of the U is a calibrated valve which may be adjusted for various degrees of damping and may also be set to drain. Since it is at the lowest point of the system, all mercury can be run out. It allows a straight downward drop so that mercury is not so easily lost.

Plastic check floats are interchangeable and stay clean because they are always submerged in mercury.

Float travel is picked up by a rack and pinion where the pinion is mounted on the bearing shaft. Rack, in this case, is a length of stainless ball-chain.

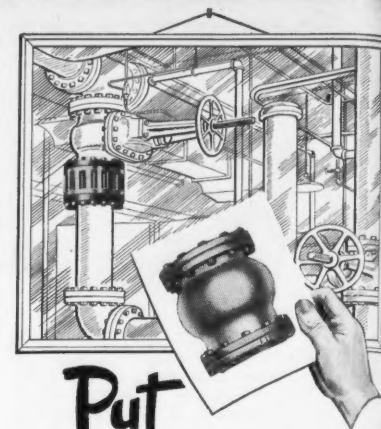
(Product of The Foxboro Company, Dept. CP, Foxboro, Mass. . . . or for more information check CP 3046 on handy form, pages 2 and 3.)

Aviation gasoline does not corrode aluminum casing of meter . . .

pressure drop across unit is less than 2.2 psi at maximum rated capacity

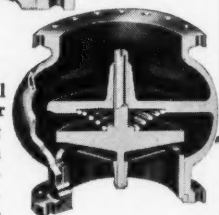
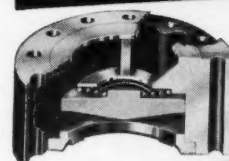
Uses: For measurement of high octane gasoline or similar products.

Features: Aluminum casing is not corroded by



**Put
WILLIAMS-HAGER
flanged
Silent CHECK VALVES
into the Picture**

**and your
WATER HAMMER
WORRIES ARE OVER**



When you install Williams-Hager flanged Silent Check Valves in your water system, you complete the happy picture of a plant . . . rid of costly water hammer. These dependable valves provide positive protection in any position including angular, horizontal and vertical with flow either upward or downward. Disc and seat are renewable—conical spring is non-wearing. Easy to install or reseal, they are available in standard pipe sizes from 1" to 20".



Write for Bulletin WH 831

Write today for your copy of this informative bulletin on Water Hammer, its Cause, Effect and Control in Piping Systems.

THE WILLIAMS GAUGE CO.
3015 PENNSYLVANIA AVE. • PITTSBURGH 33, PA.

When inquiring check CP 3047 on handy form, pgs. 2-3

CHEMICAL PROCESSING

JUN



NEW POCKET-SIZE pH METER

Nothing Like It!

Uses Electrometric Principle

- ELIMINATES indicating solutions, measurement of sample, and color matching.
- ELIMINATES errors due to sampling techniques, turbidity, and presence of oxidizing or reducing agents.

And Provides—

- INSTANT, continuous, direct reading of pH with no buttons to hold down or dials to turn.
- CONTINUOUS reading over full pH range with no changes of solutions or adjustments.

**REVOLUTIONARY
PROBE-UNIT
PROVIDES ON-THE-SPOT
pH READINGS ANYWHERE**

- ELIMINATES supports, holders, beakers, and separate electrodes.
- ELIMINATES trips to the laboratory.

Completely self-contained in water-proof, ever-ready case with shoulder strap.

PRICE \$125.00

Instrument size:.....3x5 7/8 x 2 1/2 inches
Case size:.....3 3/4 x 6 1/2 x 4 1/8 inches
Weight with accessories:.....3 lbs.

**ANALYTICAL
MEASUREMENTS
INCORPORATED**

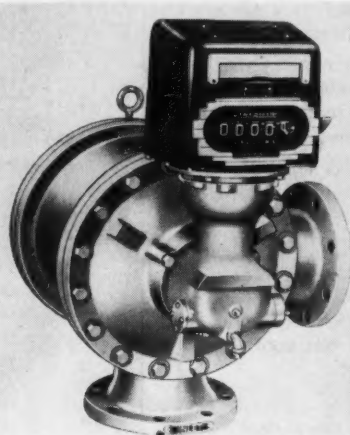
585 Main St.  Chatham, N. J.

When inquiring check CP 3048
on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

refined petroleum. Light weight makes it easier to handle the unit.

Description: Rotocycle 6 BLX, 6" rotary positive displacement bulk plant meter weighs 207 lb with aluminum casing. This compares to 417 lb for cast steel and 400 for cast iron. It is designed for continuous operation at working pressures up to 125 psi and flow rates up to 450 gpm. At this max capacity, pressure drop across meter on aviation gasoline is less than 2.2 psi and measurement is 99.95 per cent accurate.



Light weight facilitates handling

Standard accessories include strainers, air eliminators, register extensions, swivel adapters, and remote registration. It is available with different types of registers for standard volumetric or weight measures.

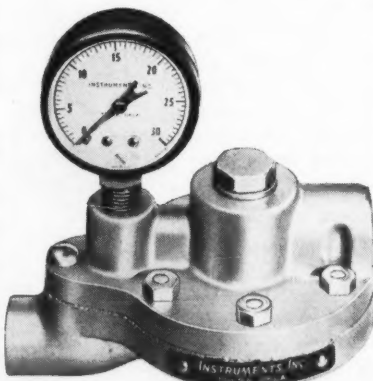
(Product of Rockwell Mfg. Company, Dept. CP, 400 N. Lexington Avenue, Pittsburgh 8, Pennsylvania. . . or for more information check CP 3049 on handy form, pages 2 and 3.)

**Changes of downstream pressures
do not affect purge rate
of relay device . . .**

with fixed flow rate orifice, supply pressure regulator is eliminated

Uses: For purge systems, liquid level, and specific gravity measurements.

Features: Maintains constant purge rate regardless of downstream pressure changes. Supplied with fixed flow rate orifice, constant differential relay eliminates supply pressure regulator.



Maintains constant purge rate

(Development of Instruments, Inc., Dept. CP, 122 N. Madison, Tulsa, Okla. . . or for more information check CP 3050 on handy form, pages 2 and 3.)

THE NEW FOSTER 50-G2 Pressure Reducing Regulator IS A NATURAL



It combines extremely close regulation and high inlet-to-outlet ratio, under varying loads — approaching instrument control — with the freedom from trouble, long life and easy maintenance of a regulator.

Here's Why:

Although the new 50-G2 is single-seated for tight shut-off, it has the throttling action of a double-seated valve. Full balanced pilot valve and short travel of operating steam to the main valve piston cut the lag in response, for extremely close following of the demand. Yet over-travel, flutter and chatter are eliminated by the mass of the piston, stabilizing multi-rings, and unrestricted area under the piston.

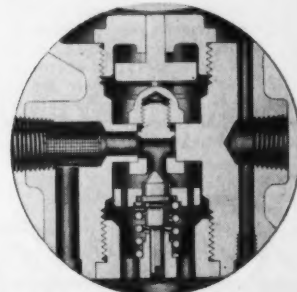
Pilot valve opening with the flow minimizes deadhead loss, and permits higher inlet-to-outlet ratio, for instance, 250# to 2#. May eliminate intermediate stage in low pressure applications such as deaerating water heaters, tank storage heaters and auxiliary exhaust systems.

All wearing parts are of stainless, corrosion and erosion resisting materials. New alloy metals mean less wear.

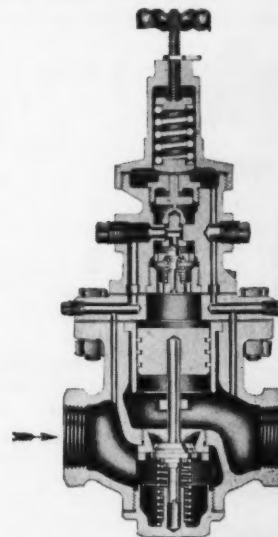
No special tools are needed for servicing, and no outside media are required for operation.

Available for initial pressures 25—1200 P.S.I.G.; temperatures to 950°F; reduced pressures from controlled vacuum of 15" HG. to 600 P.S.I.G. with minor changes in top assembly; sizes 1/2" to 12".

For full information, ask for Bulletin G-101.



50-G2 Auxiliary or Pilot Valve Unit



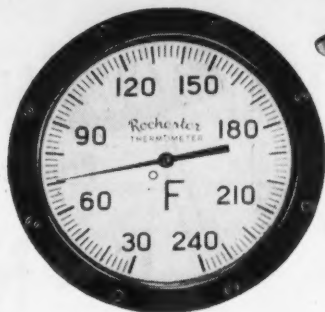
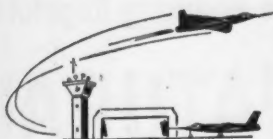
Foster Type 50-G2 Internal Pilot Operated Pressure Reducing Regulator with Standard Top Assembly

FOSTER ENGINEERING

PRESSURE REGULATORS . . . RELIEF AND BACK PRESSURE VALVES . . . CUSHION CHECK VALVES
ALTITUDE VALVES . . . FAN ENGINE REGULATORS . . . PUMP GOVERNORS . . . TEMPERATURE
REGULATORS . . . FLOAT AND LEVER BALANCED VALVES . . . NON-RETURN VALVES . . . VACUUM
REGULATORS OR BREAKERS . . . STRAINERS . . . SIRENS . . . SAFETY VALVES . . . FLOW TUBES

When inquiring check CP 3051 on handy form, pgs. 2-3

Smooth
action...



STAINLESS-STEEL
CONSTRUCTION
—welded—more
durable, sensitive,
pressure tight, cor-
rosion resistant.

Rochester DIAL THERMOMETERS react instantly to temperature changes!

• The superior dampening in ROCHESTER Dial Thermometers will never "set-up" or "freeze" the pointer in one position. It assures fast, smooth action at all times. New bimetallic elements never "tire" or lose their accuracy . . . take violent temperature change without error in indication.

Made of corrosion resistant stain-

less steel . . . backed by 35 years of instrument-making experience . . . ROCHESTER Dial Thermometers are ideal for heavy-duty service. And they're made to meet U. S. Air Force specifications.

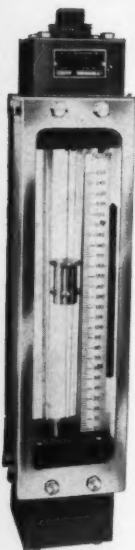
Order them today from your Rochester Representative or write for further details. Rochester Manufacturing Co., Inc., 86 Rockwood St., Rochester 10, N. Y.

Rochester
DIAL THERMOMETERS GAUGES AMMETERS

Manufacturing Company, Inc.
86 Rockwood St., Rochester 10, N. Y.



When inquiring check CP 3052 on handy form, pgs. 2-3



The FULL-VIEW ROTAMETER

Dowel Pins are the difference



8 stainless steel dowel pins precisely align the side plates and end fittings and are the keys to quick, trouble-free assembly and maintenance. The metering tube is installed after the frame is completely assembled. Tube breakage due to strain and misalignment is thereby eliminated. It's as simple as placing a round peg in a round hole.

Check These Advantages!

- ✓ Low Maintenance
- ✓ Corrosion Resistance
- ✓ Greater Operating Safety
- ✓ Certified Accuracy

You will find these and other important advantages in Brooks FULL-VIEW Rotameters.

Write for Bulletin No. 110-P.

ROTAMETERS

for every service

with emphasis on SERVICE

**BROOKS
ROTAMETER
COMPANY**

Lansdale, Pennsylvania



When inquiring check CP 3053 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

Sensitive near zero, null-indicating meter takes overloads . . .

center-zero micrometer is rugged enough for field use

Uses: Can be used as a zero-indicating, or null-indicating meter.

Features: Extremely sensitive near zero current, meter becomes far less sensitive as current carries the pointer out to the end of the scale.

Overloading by ten times full scale reading is reported not to damage this instrument.

Description: Models HS2 and HS3 Null Indicators are center-zero microammeters whose sensitivities drop markedly as current increases in either direction from zero. Typical characteristics are:

SENSITIVITY*		FULL SCALE
at zero	at full scale	READING
0.2	4.2	100 μ amp
0.7	7.4	200
1.1	21.0	500

*microamperes per degree of deflection

Sensitivity drops off along a logarithmic curve.

In addition to their relative safety in handling overload current, meters are hermetically sealed and they are very rugged.

They are reported to be among the first meters of this type suitable for field use.

(Product of Marion Electrical Instrument Company, Dept. CP, Manchester, N. H. . . . or for more information check CP 3054 on handy form, pages 2 and 3.)

Two types of gage for high or low pressure

Sectional illustrations and descriptive material cover two types of gage.

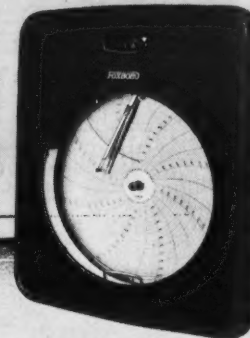
Protected type gage is intended for use on low pressure gas or light liquids in range of 30" of vacuum to 100 psi. Cleanout type gage has large flange and threaded connection.

It may be used with any media in range from 30" vacuum to 400 psi.

Models are also available in both types for range from 160 to 1500 psi. Units are Bourdon spring gages designed with special adaptor for use in chemical process industries, where the media might tend to clog or corrode the gage. Pages 56 and 57 of Cat 57 are issued by United States Gauge, Division of American Machine and Metals, Inc., Dept. CP, Sellersville, Pa. When inquiring specify CP 3055 on handy form, pages 2 and 3.

LIQUID LEVEL

Indicators Recorders Controllers



The completeness of the Foxboro Line is your assurance of unbiased recommendations on instruments to indicate, record, or control liquid level. Whatever type of system you require (bubble tube, differential pressure, float, diaphragm box) . . . whatever your problem (such as turbulent, viscous, or corrosive liquids, whether in open or pressured vessels) — Foxboro offers the most efficient instruments for the job. Why not consult Foxboro first — and be sure! Write The Foxboro Company, 816 Norfolk St., Foxboro, Mass., U.S.A.

FOXBORO Instruments

When inquiring check CP 3056 on handy form, pgs. 2-3



in just 3 seconds

. . . you can read any surface temperature in your plant . . . accurately and easily . . . with the Alnor Portable Pyrocon.

Compact in size, complete in precision design and workmanship, this rugged instrument assures the highest standards of speed, accuracy and dependability. You can take temperature readings on materials in process, the finished product or the heated equipment itself—in as few as 3 seconds!

Alnor Portable Pyrocons come in scale ranges to 2000° F., with thermocouples for every application. You'll find full details on the Pyrocon exactly suited to your operations in Bulletin 4257. Send for your copy now. Write: Illinois Testing Laboratories, Inc., Room 504, 420 N. LaSalle St., Chicago 10, Ill.

Alnor

**PRECISION INSTRUMENTS
FOR EVERY INDUSTRY**

When inquiring check CP 3057 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Calibrated cam translates liquid level measurement to lineal scale . . .

so that open channel flow meter can be easily read

Uses: Recording, integrating, and controlling flow of water, sewage, plant effluent, or other liquids flowing in open channels.

Features: Counterweighted float picks up liquid level from the channel near a weir. Cam, cut in accordance with weir-form used, translates this level (hence flow rate) into readings on a lineal scale.

Description: Series 500 Open Channel Flow Meters are offered in two types — a mechanical type where the cam moves pen arm across the chart, and an electrical type employing timed-impulses for remote recording. Remote station may be as far removed as desired and the signal is transmitted by a pair of conductors. In either case, cams can be cut to provide uniform charts with V-notch, trapezoidal, Cipoletti, rectangular, or any other weir plate in general use. Automatic control can be either pneumatically or electrically operated.

(Development of The Bristol Company, Dept. CP, Waterbury 20, Conn. . . or for more information check CP 3058 on handy form, pages 2 and 3.)

Instrument does the work of two as indicator, recorder, and controller . . .

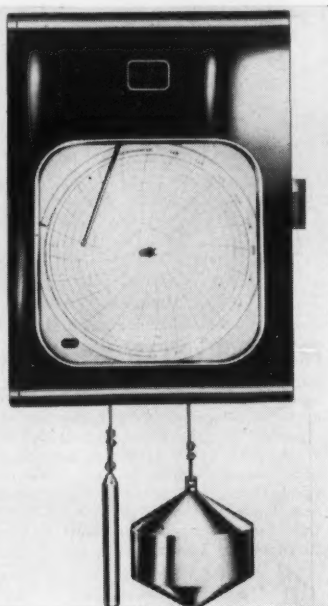
with inductance bridge transmission system, it gives accuracy to within $\pm 1/2$ of 1 per cent

Uses: For measurement and control of flow and liquid level.

Features: Requiring no special provisions or extra equipment, this inductance bridge receiver combines a number of functions which formerly required the use of two instruments, and is accurate to within $\pm 1/2$ of one per cent of full scale. Makes it possible to indicate, record, integrate, and control flow and liquid level.

Description: While using the instrument, data can also be transmitted pneumatically to a second receiver remotely located. An Indexet mechanism is available to reset the control index from a remotely located transmitter. These receivers can be used with any of the manufacturer's electric flow or motion transmitters.

(Development of Brown Instruments Div., Minneapolis-Honeywell Regulator Co., Dept. CP, Wayne and Windrim Aves., Philadelphia 44, Pa. . . or for more information check CP 3059 on handy form, pages 2 & 3.)



THE CONSOLIDATED TITRILOG provides an effective and economical means of continuously and permanently recording the concentration of sulfur compounds in a gas stream.

This instrument is used extensively in monitoring odorant injection in natural gas and guarding against corrosive sulfur compounds harmful to pipe lines and other equipment. Detecting concentrations as low as 0.1 part per million or .005 gr./100 cu. ft., the TitriLog records quantitatively H_2S , SO_2 , mercaptans and organic sulfides. These and other sulfur compounds may be determined over a wide range of concentrations.

If you are buying, selling, blending, or treating field gas or odorizing gas in distribution lines, you'll find the Consolidated TitriLog your best gage for control. Write today for complete details given in Bulletin CEC-1810.

-in air pollution

Either model of the TitriLog may be used effectively for the control or study of air pollution. The concentration of dangerous H_2S is shown on a continuous or instantaneous basis—permanent recording and audible warning protect plant personnel and community. Portable model may be moved to locate source of contaminants. Will not react to carbon dioxide, carbon monoxide, ammonia, or hydrogen. Unsaturated hydrocarbons produce a negligible error because of their low reaction efficiency. Investigate this safeguard against plant or community air pollution.



Consolidated Engineering

CORPORATION

300 No. Sierra Madre Villa, Pasadena 8, California



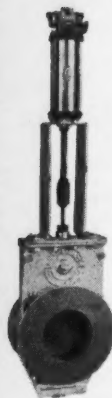
Analytical
Instruments
for Science
and Industry

TitriLog

Two models—26-102 stationary unit, 18 1/2" x 22 1/2" x 66" and 26-103 portable, approximately 50 lbs. Both are offered only on a rental basis which includes installation, service, maintenance and operating supplies.

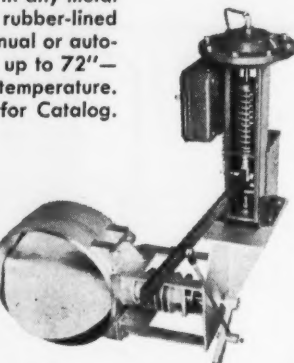
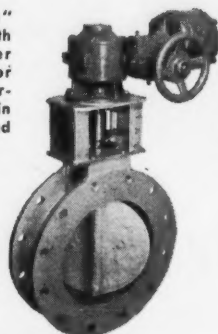
When inquiring check CP 3060 on handy form, pgs. 2-3

for Better Control and Shut-Off of Air • Gases • Liquids • Solids



"Kwikleen" slide valve with air cylinder operator, for handling carbon shapes in a hopper feed system.

Butterfly valve with electric motor and declutching mechanism for emergency handwheel operation; for handling water at 25 p.s.i.



Stainless steel butterfly valve for welding into pipe line; with air diaphragm operator and valve positioner; operation at 1600° F.

ROCKWELL VALVES

W. S. ROCKWELL CO. • 220 Eliot St., Fairfield, Conn.

When inquiring check CP 3061 on handy form, pgs. 2-3

MEASURE LIQUIDS ACCURATELY TO PREVENT WASTE AND LOSS with the WIDE RANGE of NIAGARA METERS



Niagara - metering assures accurate measurement of almost any volume or type of liquid. Waste and losses are cut down; liquid - quantity formulae may be followed more precisely. Liquids keep moving smoothly and continuously in the meter for time-saving efficiency. Measure with Niagara Meters!

Send coupon for complete details today.

1 30 to 1000 gallons per minute

BUFFALO METER CO.

2892 MAIN STREET
BUFFALO, N. Y.

Please send me full information on use of Niagara Liquid Meters for:

Liquid.....
Temp.....°F. Pressure.....p.s.i.
Flow rate.....g.p.m.
Maximum Batch.....gals.
Company.....
By.....
Address.....

When inquiring check CP 3062 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

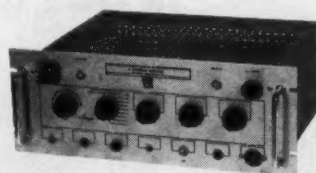
**Designed for rack use,
4-gage amplifier
is sensitive . . .**

one active gage measures 10 to 40,000 micro-inches per inch

Uses: For use with direct wiring oscillographs in studies of static or dynamic strains up to 100 cps when measured by the use of resistance sensitive strain gages (SR-4).

Features: When used with appropriate pick-up device, pressures, temperatures, torque, accelerations and forces may be recorded. Designed for use in a standard 19" rack and having a 7" front panel, amplifier has measurable range from 10 to 40,000 micro-inches per inch with one active gage; sensitivity is increased four times by the use of four active gages.

Description: Model BL-360 amplifier may be used with any gage type with ohmic resistance of 50-100 ohms. The control panel contains a 10-step attenuator, terminals for con-



Amplifier is designed for rack mounting

nection of strain gages, calibration resistor holder, resistance and capacity bridge balance controls, gain controls and pen centering controls.

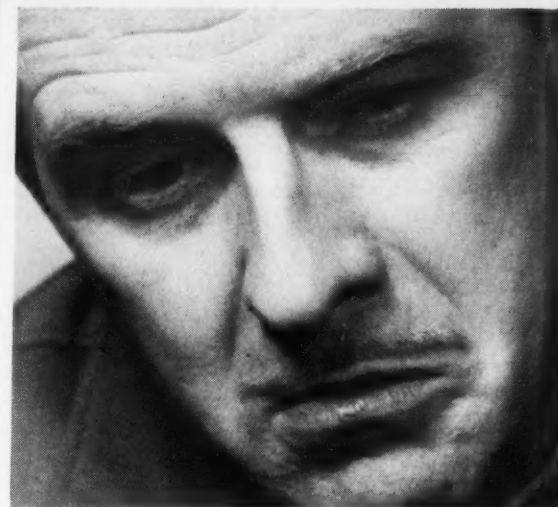
Amplifier contains a 2000 cycle bridge energizing oscillator, high gain AC amplifier, phase sensitive discriminator, and DC output amplifier section. Provision is made to permit use of the DC output amplifier section as a separate unit with an input jack provided for this purpose.

(Product of The Brush Development Co., Dept. CP, 3405 Perkins Ave., Cleveland 14, Ohio . . . or for more information check CP 3063 on handy form, pages 2 and 3.)

Spectrophotometric bibliography

Booklet is 25-page bibliography of photoelectric spectrophotometric methods of analysis for inorganic ions.

To obtain Booklet STP 125, remit \$1.50 direct to American Society For Testing Materials, Dept. CP, 1916 Race St., Philadelphia 3, Pa. When inquiring specify CP 3064 on handy form, pages 2 and 3.



FRUSTROSITY* CASE No. 74: Mr. Stuckinlab is really bogged down. If he had a 1952 Brookfield Viscometer at hand, he would know all the viscosity answers — could make determinations directly in centipoises in a matter of seconds in lab, plant, or both. Whether the materials you work with are Newtonian or non-Newtonian, you owe it to your wife, customers and co-workers to get up-to-date information on Brookfield Viscometers adaptable to any problem from less than one to 32,000,000 centipoises. Ask your Lab Supply House or drop a line to Dept. A, Brookfield Engineering Laboratories, Inc., Stoughton, Mass.



*FRUSTROSITY is that frustrated condition a man gets into when his problem is Viscosity Determination or Control and he hasn't asked BROOKFIELD.

When inquiring check CP 3065 on handy form, pgs. 2-3

DON'T STOP PRODUCTION

Unless strainer screens are frequently cleaned, they eventually clog. The production time lost by the shutdown to clean the choked screen, and the labor involved, can be saved by installing

SARCO TYPE VRS SCRAPER STRAINER

Cleaning the screens is easy—just turn the handle! Continuous operation is assured. No messy basket to be lifted out—No exposure of the liquid to airborne contamination. Man hours saved will pay for it many times over. Available also motor driven.

Ask for Bulletin 1226. 515

SARCO COMPANY, INC., Empire State Bldg., New York 1, N.Y.
Sarco Canada, Ltd., Toronto 5, Ontario

When inquiring check CP 3066 on handy form, pgs. 2-3

CHEMICAL PROCESSING

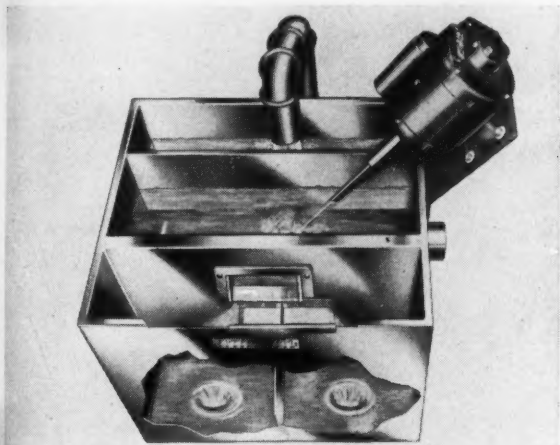
Splits liquid or slurry flow into two streams with controlled ratio . . .

agitation and stilling chambers precede weir, calibrated splitter divides the flow

Uses: For proportioning two streams of the same liquid or slurry. Operation can be either manual or automatic.

Features: Tank provides sufficient agitation to hold materials in suspension, yet liquid level is held smooth enough so that weir gives reliable operation.

Description: Proportioning Weir Tanks consist of a specially constructed tank incorporating a stilling chamber, an accurately machine weir, two outlet chambers, and a flow splitter so arranged that the total flow to the two outlets can be readily divided in any pro-



Stainless, mild steel, or rubber lined

portion. This flow splitter is graduated in percentage of total flow, is instantly adjustable, and has no moving parts. It may be fitted with a pneumatic or electrical operator.

Standard tank has a maximum capacity of 30 gallons per minute. Overall, it is 24 x 20 x 20 inches high (though the height is adjustable to 25 inches). Standard tank is of stainless, and mild steel or rubber-lined tanks are available on order. The Weir itself is rectangularly shaped.

It is machined from cast bronze. Agitation may be provided either with hydraulic jets or with conventional motor-driven stirrers.

(Built by Omega Machine Company, Division of Builders Iron Foundry, Dept. CP, P. O. Box 1342, Providence 1, R. I. . . or for more information check 3067 on handy form, pages 2 and 3.)

Manometer available in lengths from 10 to 100 inches

Drawing and data sheet cover straight-tube U-tube manometer. Instrument comes in lengths ranging from ten to one hundred inches. Graduations may be in inches of water or of mercury or in any other equivalent units such as pounds, ounces, millimeters, grams, etc.

Print No. 828 and Data Sheet U-51 are issued by Uehling Instrument Co., Dept. CP, 473 Getty Ave., Paterson, N. J. When inquiring specify CP 3068 on handy form, pages 2 & 3.

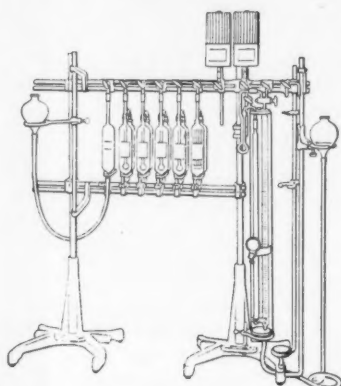
JUNE, 1952

FOR SCIENTISTS EVERYWHERE

GAS ANALYSIS

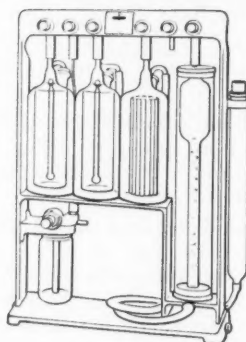
APPARATUS

by **BURRELL**

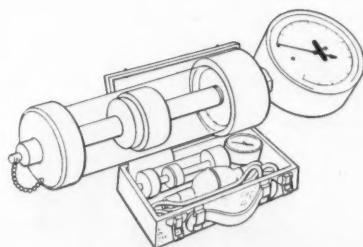


Your needs have impelled Burrell to pioneer in the field of gas analysis down through the years. Many "firsts" and "exclusives" in both construction of apparatus and methods of procedure have resulted. Typical Burrell exclusives are Catalytic Combustion for greater speed, safety and accuracy, and Perma-Therm heating for constant, automatic, temperature control. Of particular interest to scientists everywhere is the versatility of types and models offered. You select from the most complete assortment of gas analysis apparatus available. All of your needs can be met.

THE BURRELL DE LUXE MODEL J, pictured, is one of the most frequently specified types of gas analysis apparatus. Designed for adaptability and efficiency in the laboratory, any simple or complex mixture may be handled with speed and accuracy. Because all of the necessary equipment for all the commonly used methods is incorporated, the analyst needs only to select the method best suited to the gas sample. This versatile Burrell gas analyzer is delivered with all needed equipment and accessories for prompt operation. For more detailed information about this and other models, write for Burrell Catalog 80, which contains a helpful Manual for Gas Analysts.



THE BURRELL INDUSTRO GAS ANALYZERS are compact, portable and easily operated units for the industrial gas analyst. Designed for on-the-job use, these "Industros" are rugged and trouble-free. The frame is all metal and there are no glass stopcocks to handle with care. Model B (shown), is used for mixtures such as flue gases where determination of carbon dioxide, oxygen, and carbon monoxide is desired. Model C offers added facilities for more complicated mixtures. For detailed information about these efficient Burrell Industro Gas Analyzers, ask for Bulletin No. 313.



THE BURRELL CO₂ INDICATOR is a necessity for all combustion engineers. By measuring the CO₂ content and the temperature of the chimney gas, amount of heat loss can readily be determined. The Burrell CO₂ Indicator is light and sturdy with an easy-to-read scale. No installation or time consuming preparations are needed—a small hole in the stack makes immediate testing possible. A complete kit includes all accessories and instructions for use. Ask for Burrell Bulletin No. 206.



BURRELL CORPORATION

2223 FIFTH AVENUE, PITTSBURGH 19, PENNSYLVANIA

MANUFACTURERS AND DISTRIBUTORS OF SCIENTIFIC APPARATUS AND LABORATORY CHEMICALS

When inquiring check CP 3069 on handy form, pgs. 2-3

Send for
Latest Bulletin

BENEFITS from NEW HIGH SPEED MIXER

Homogeneous Mixing Now is Obtained in Faster Time . . . at Less Cost . . . with the "ENTOLETER" Mixer.

The "ENTOLETER" Mixer is a new-type centrifugal machine designed to provide thorough mixing and blending . . . in faster time . . . at reduced cost. In actual manufacturing operations in the chemical industries, this equipment is producing amazingly uniform mixtures, simply and economically.

Continuous Mixing

The "ENTOLETER" Mixer produces a finished mixture at rates up to 250 pounds per minute. Where ingredient percentages in a formula are sufficiently large to allow accurate metering, a truly continuous operation is achieved.

Adaptable to Batch System

The "ENTOLETER" Mixer is easily incorporated in the processing system as a final mixer. It serves to shorten mixing time, with consequent savings and appreciable improvement in product quality.

SEND TODAY FOR YOUR COPY OF THIS NEW, INFORMATIVE BULLETIN — ILLUSTRATING AND DESCRIBING SOME OF THE ADVANTAGES OF HIGH SPEED CENTRIFUGAL MIXING.

ENTOLETER DIVISION

The Safety Car Heating and Lighting Co., Inc.
1185 Dixwell Avenue, New Haven 4, Conn.

Rough Time with Sandpaper Until Moisture Tests Spotted Flaws

PROBLEM: Coated abrasives (commonly known as sandpaper) are made up of three principal parts — abrasive grains, glue or resin bonding agents, and a backing of paper, cloth, fiber, or fiber combinations. Too little moisture leads to weak glue, and consequently weak sandpaper. Too much moisture on the other hand, may mean non-uniform flexing, mold, and paper delamination.

Solution: To get away from these headaches, Coated Products Division of the Carborundum Company at Niagara Falls tried the Tag Midget Moisture Meter. Originally designed for determining moisture in wood, the meter is portable and reads directly in percentage moisture. It is powered by contained batteries and makes tests on the electrical resistance principle. Needle probes (shown) are used for roll paper; they are removed for testing flat paper or fiber.

Coated Products uses the meter first in the initial coating operations. Here it checks drying conditions by tracing moisture content of the coated material as it is dried.

Next, meter is used in auxiliary drying and curing stages to help prevent dehydration of backings and coatings which require an equilibrium moisture content. Then, before finishing products for delivery to customers as belts, sheets, rolls, discs, etc, a check is made to insure that the coated abrasive is in proper condition.

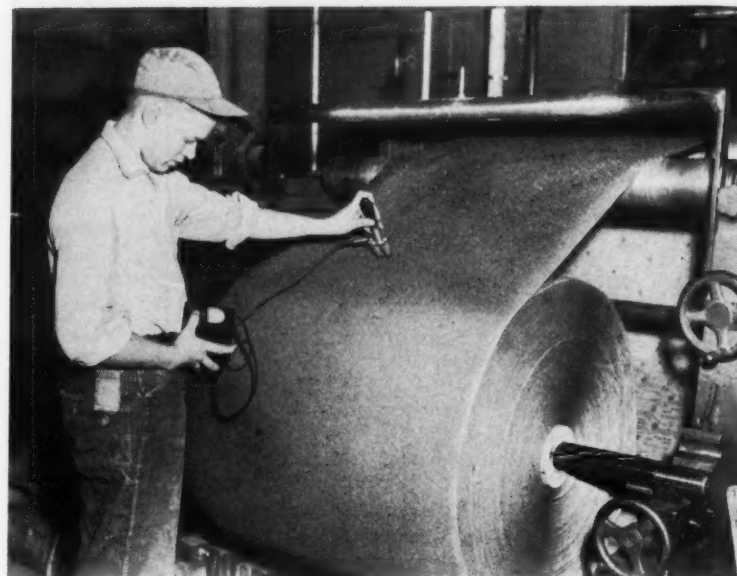
Results: That the meter has proven practical is seen by the fact that ten of them are now in service at Coated Products. The company had this to say, "Quality has



Tester is used with needle probes for roll paper; without them for flat paper or fiber material

For the
Laboratory

Moisture content of sandpaper is critical in processing — electric tester spots bad runs quickly



Checking moisture content as coated abrasive rolls out of the drying room

improved; losses, due to improper moisture content, have been eliminated. The meters have shown a need for additional auxiliary processes in certain products and have materially aided our product development program."

(Tag Midget Moisture Meter (Model 8009) is a product of Tagliabue Instruments Division, Western Electrical Instrument Corp., Dept. CP, 614 Frelinghuysen Ave., Newark 5, N. J. . . . or for more information check CP 3071 on handy form, pages 2 and 3.)

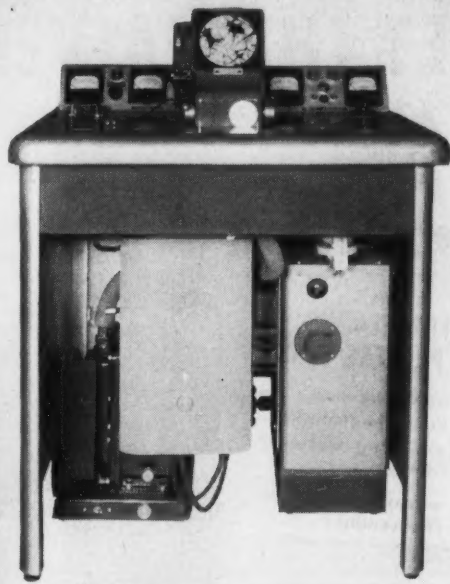
Superior Image quality stressed in electrostatically focused electron microscope . . .

distortion, astigmatism, image rotation reported to be well controlled in 30 angstrom, 50,000X instrument

Uses: Visual and photographic studies at high magnification. Instrument is particularly well suited for stereo- and photo-micrographs.

Features: Resolving power is 30 angstroms. Image is reported to be completely free of astigmatic or other distortion. Electrostatic electron-optic system holds distortion down in stereo work; eliminates image rotation when magnification is changed.

CHEMICAL PROCESSING



Four-inch square screen is shown at top center

Description: Model EST 1 is an electron microscope with electrostatic lenses rather than the more familiar focusing coils. This design appears to result in an instrument with slightly lower magnifying power, but excellent image characteristics. Electron-optic system of the EST 1 accounts for about 20,000 diameters magnification. A light-optical magnifier can be used for visual work at 40,000 to 50,000 diameters, while photographic systems may produce usable magnifications of 100,000 diameters.

Four-inch square fluorescent screen is mounted for convenient viewing from a seated position. Four-step control of magnification covers the range from 2000 to 20,000 diameters. Other controls allow the operator to change location of the specimen and to pin point areas to be tested with electron diffraction. Switching the instrument to electron diffraction is easily done without breaking the vacuum. Camera is external, requires no breaking vacuum for use. Lenses are designed and polished to minimize flashover and operate safely at 30kv. High voltage leads and connections are tested at 100kv, providing an ample margin of safety. Column of the microscope is mounted on insulators — damping vibration to negligible values.

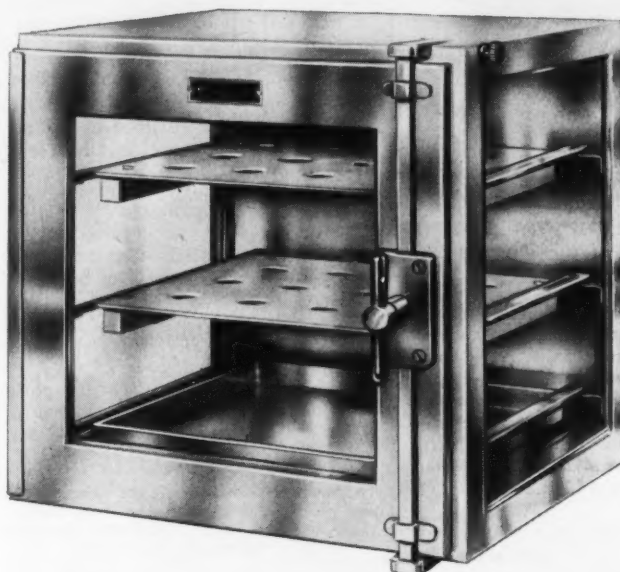
Instrument includes its own vacuum system, though one-half-gallon of water per minute must be supplied for cooling the diffusion pump. Electrical power of 750w is supplied from a 115v 60 cps line. Power need not be specially regulated.

(Developed by Farrand Optical Co., Inc., Dept. CP, Bronx Blvd. & E. 238th St., New York 66, N. Y. . . . or for more information check CP 3072 on handy form, pages 2 & 3.)

Dryers to handle fragile or heat sensitive materials

Four-page bulletin provides complete description of operation of continuous, vertical, transfer type dryers. Units are intended to handle fragile or heat sensitive materials ranging from thick slurries to fine powders, through repeated piling and spreading. Illustrations and diagrams are included to highlight construction and practical application of units. "L and N Series Turbo-Dryers" is issued by Wyssmont Company, Dept. CP, 31-04 G Northern Blvd., Long Island City 1, N. Y. When inquiring specify CP 3073 on handy form, pages 2 and 3.

STAINLESS STEEL *Desiccating Cabinet* **DESIGNED FOR METALLURGICAL, CLINICAL, AND CHEMICAL LABS**



- ★ **Completely air-tight and moisture-proof!**
- ★ **Warp-proof door**

Here's the answer to your need for a desiccating cabinet that is durable, air-tight and moisture-proof, and adaptable to many applications. Built for convenient use, this attractive cabinet will serve well in the metallurgical, chemical, or clinical laboratory. It incorporates many useful features:

1. Specially designed warp-proof, air-tight door which is gasketed with a pure gum rubber seal.
2. Needle valve to relieve pressure.
3. Large capacity.
4. 18-8 stainless steel throughout.
5. $\frac{3}{16}$ " glass windows which are tightly cemented to the frame.
6. Adjustable asbestos shelves.

This cabinet may be used for cooling ignition samples, or for storing metallurgical samples, and it is also ideal for storing dissecting instruments and other types of surgical instruments. The shelving consists of two asbestos shelves, 8" x 9 $\frac{3}{4}$ ", each with twelve $\frac{7}{8}$ " holes, and one removable stainless steel tray, 8" x 9" x $\frac{5}{8}$ ", to hold approximately one pound of desiccant. Also included are three

sets of removable shelf brackets with runners adjustable every $\frac{1}{2}$ ". Pressed feet on the bottom of the cabinet and corresponding indentations on top facilitate stacking and storing so that several of these cabinets may be kept in a relatively small space. Inside measurements are: height, 12"; width, 11 $\frac{1}{2}$ "; depth, 10". Outside measurements are: height, 12 $\frac{1}{2}$ "; width, 12 $\frac{1}{2}$ "; depth, 12 $\frac{1}{2}$ ".

H-18877—Stainless Steel Desiccating Cabinet. Each \$67.50
Quantity prices on request. Price subject to change without notice.

HARSHAW SCIENTIFIC
DIVISION OF THE HARSHAW CHEMICAL CO.
CLEVELAND 6, OHIO

Cleveland 6, Ohio
1945 East 97th St.
Cincinnati 2, Ohio
224-226 Main St.
Detroit 28, Mich.
9240 Hubbell Ave.



Houston 11, Texas
6622 Supply Row
Los Angeles 22, Calif.
3237 S. Garfield Ave.
Philadelphia 48, Pa.
Jackson & Swanson Sts.

When inquiring check CP 3074 on handy form, pgs. 2-3

A QUICK ECONOMICAL way to clean small tubes

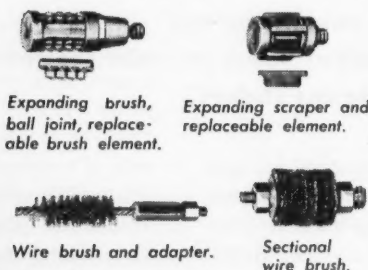
ROTOJET Junior Tube Cleaners offer advantages possessed by no other type. They are light in weight, fed easily with the hose, and shifted quickly from tube to tube.

The ROTOJET Motor is unusually powerful and efficient. It has only two moving parts, a shaft and a paddle. Positive contact, maintained between paddle and Rotocentric (egg-shape) bore cylinder, assures an undivided air stream and freedom from power loss. An air valve permits one-man operation. Models for straight and curved tubes .495" I.D. up. Water-driven models for tubes .953" I.D. up.

ROTOJET size, speed, and ease of operation offer a marked contrast with external cleaners costing many times as much. Send for new bulletin.

Roto Heads are economical

Roto Heads meet practically every cleaning need. Expanding brushes and scrapers have inexpensive replaceable elements for economical operation.



ROTOJET Junior TUBE CLEANERS



ELLIOTT COMPANY-ROTO DIVISION

141 Sussex Avenue

Newark 1, N. J.

When inquiring check CP 3075 on handy form, pgs. 2-3

FOR THE LABORATORY

Cuts "waiting" time by 80% with oil dash pot . . .

eight models of torsion balance have metric or English scales

Uses: Reasonably fine weighing of material up to two or four-and-one-half kilograms.

Features: Damping is accomplished with an oil dash pot — weighing operation is reported to be five times as fast as with conventional balances of comparable accuracy.

Description: Eight models of this Torsion Balance are available for weighing in metric or avoirdupois units. Characteristics can be summarized as:

Model	Capacity	Smallest* Division
IL-2)	2 kgm	0.1gm
IL-6)	5 lb	0.01 oz
IL-4)	7000 gr	1 gr
IL-8)	4.5 kgm	0.2 gm
	10 lb	0.01 oz

*Although sensitivities are the same, smallest division differs between two models shown in each case. Smallest division of the two is shown.

Principle difference between models of the same capacity is single-versus-double beams. Specially designed weights on these beams cannot cock



For 2 and 4.5 kilogram loads

to introduce weight errors. Either pans or scoops may be furnished as desired. Both are brass, but the pans are chrome plated.

Entire weighing mechanism is virtually one piece with no loose parts to cause faulty operation. All metal parts are corrosion-resistant.

Corrosion resistant parts are used and finish is a baked enamel. Design minimizes effects of dust, dirt, or abrasive particles which may find their way into the instrument.

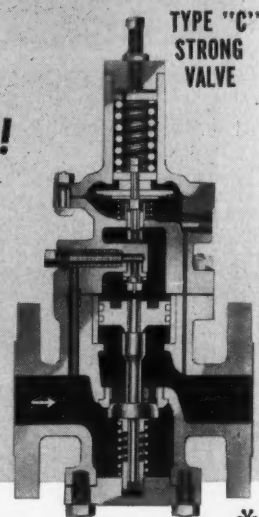
(Product of The Torsion Balance Company, Dept. CP, Clifton, N. J. . . . or for more information check CP 3076 on handy form, pgs. 2 & 3.)

GET THIS VALVE!

Accurate pressure regulation!

FOR HEATING OR PROCESS JOBS:

... with intermittent or fluctuating demand;
... requiring accurate control;
... where dependability is essential.

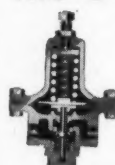


For positive control, use this **STRONG** single-seated, pilot-controlled valve!

Simple design, extra-heavy construction make **STRONG's** Type "C" regulating valve give trouble-free regulation. Semi-steel for pressures to 250 psi, 450° F.; cast steel to 600 psi, 750° F. With Anum-Mett† seat and disc, this valve automatically adjusts itself to control the flow of steam, air or gas required to maintain reduced pressure.

Write us about your pressure reducing problem or request our complete steam specialties Catalog 68-T.

TYPE "O"



Direct operated. Semi-steel construction suitable for initial pressures to 225 psi, 400° F. For steam, air, water or gas.

Features internal strainer, Anum-Mett† seat and disc. Direct operated, of extra heavy semi-steel, this valve is suitable for pressures to 225 psi, 400° F.

TYPE "K"



*Trade Mark Reg. U. S. Pat. Off.

STRONG, CARLISLE & HAMMOND COMPANY



1392 WEST 3rd Street
Cleveland 13, Ohio

†ANUM-METT
Reg. Trade Mark

OTHER STRONG STEAM SPECIALTIES



No. 070 Small Trap



"SY" Strainer



800 Series Steel Trap

STRONG

When inquiring check CP 3077 on handy form, pgs. 2-3

CHEMICAL PROCESSING

FOR THE LABORATORY

Measures transmission, reflection as well as various functions of color . . .

linear to 0.2 per cent reflectance or transmission without standardizing; 0.02 with standardizing

Much more sensitive than the human eye, especially in measuring differences in similar colors, the Colormaster Differential Colorimeter can make a complete set of color measurements in less than thirty seconds. It is useful

for checking any substance where color is important and it is also especially recommended for synthetic fibers, paints, solutions, pigments, and slurries.

Three color filters give approximate ICI x, y, and z functions. Transmission and reflectance are measured directly. Linearity of the instrument is approximately within 0.2 per cent reflectance or transmission down to 10 per cent. By standardizing on a dark panel, range can be extended far below 10 per cent with a linearity of 0.02 per cent. Dial can be read directly in tenths of a per cent and hundredths can be estimated. Back-lash or dead zone is held under 0.02% transmission or reflectance.

Color master is vibration proof and is insensitive to humidity. Drawing 65 watts, it is powered with standard 115 v 60 cps.

(Product of Manufacturers Engineering & Equipment Corp., Dept. CP, Hatboro, Pa. . . or for more information check CP 3078 on handy form, pages 2 & 3.)

Allows scintillation counter to drive an ordinary Geiger scaler . . .

gain is linear can be adjusted to 2000 to provide sensitivity down to 0.75-millivolt pulses

Uses: Scintillation-counter amplifier produces a signal which will drive an ordinary Geiger scaler.

Features: Amplifier provides high voltage for the counter. Gain can be adjusted as high as 2000 and output is linear with input. Sensitivity allows pulses as small as 0.75 millivolts to be picked up.

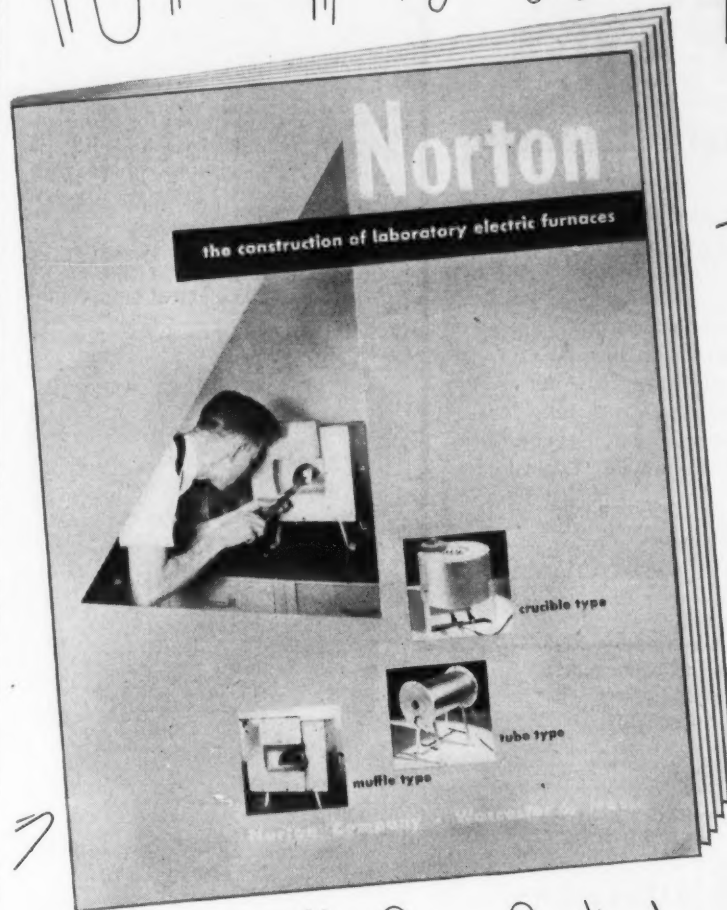
Description: Model A-200 Amplifier is designed to allow scintillation counters to be used with ordinary Geiger scalers. Besides the linear, high-gain amplifier itself, unit includes a true pulse height discriminator, and a regulated high voltage supply. B-plus is regulated and used as a reference for the high voltage. Net effect is a 0.005% change in output voltage for every one volt change in input voltage between 95 and 130 volts.

Discriminator employs a modified Schmitt trigger circuit and is adjustable on the front panel for 0 to -100 volts. Amplifier has a rise time of 0.25 microseconds.

(Product of Nuclear Research and Development, Inc., Dept. CP, 1094 Sutter Ave., St. Louis 5, Mo. . . or for more information check CP 3079 on handy form, pages 2 and 3.)

JUNE, 1952

Know the facts about laboratory electric furnaces?



Useful

36-page

booklet brings you authoritative data on high temperature furnaces...

shows how to build them...contains practical, easy-to-use diagrams, charts, tables

Get your free copy

of this fact-filled Norton booklet today.

Find out now how you can put electric furnaces to work for you . . . in the analytical, chemical or research laboratory. Learn the facts on the three basic types of laboratory furnaces . . . how to construct them. Use the many diagrams, charts, tables as basic guides in constructing furnaces that are scientifically accurate.

Read about the special characteristics of Norton ALUNDUM* and CRYSTOLON* refractories used in these furnaces . . . how and why they help you get better results over a longer period of time. Plan to get your copy of

Norton FORM 458, "The Construction of Electric Furnaces for the Laboratory." Simply write direct to Norton

Company, 563 New Bond St., Worcester 6, Mass. Canadian Representative: A. P. Green Fire Brick Co., Ltd., Toronto, Ont.

*Trade-Marks Reg. U. S. Pat. Off. and Foreign Countries

NORTON

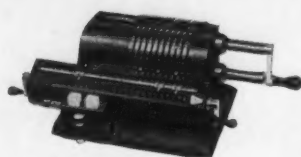
Special REFRACTORIES

Making better products to make other products better

NORTON COMPANY, WORCESTER 6, MASS.

When inquiring check CP 3080 on handy form, pgs. 2-3

"THE MACHINE TO COUNT ON"



Your personal laboratory calculator

ORIGINAL-ODHNER

"THE MACHINE TO COUNT ON"

- ✓ SAVES time
- ✓ SAVES money
- ✓ SAVES effort
- ✓ SAVES errors

Best for wide range of needs; short-cuts, simultaneous multiplications, divisions, reciprocals, complements, etc. More convenient than large, expensive electrical machines.

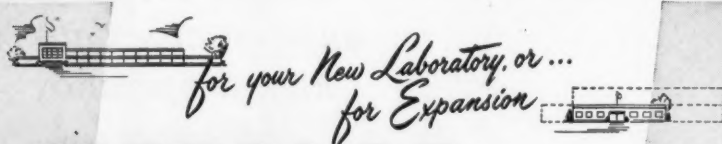
For quick calculating in the laboratory this compact, light-weight portable calculator is unsurpassed. Performs all needed calculating operations, from the simplest to the most complicated, with remarkable time-saving ease. Weighs only 12 pounds—the utmost in precision design and construction—rapidly becomes your all-round inseparable lab companion. Priced low.

Send for Bulletin CH-63

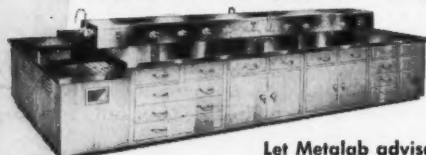
Ivan Sorvall, inc.

210 FIFTH AVENUE, NEW YORK 10, N. Y.

When inquiring check CP 3081 on handy form, pgs. 2-3



METALAB offers you the Finest in LABORATORY EQUIPMENT WITHIN YOUR BUDGET



Let Metalab advise you on

- How to plan your Laboratory for greater efficiency.
- How Interchangeable Sectional Units are used.
- How to get the most for your laboratory budget.

Our new modern plant is geared to give you the close cooperation and rapid service you require.

Rush your problems to us today!

Write for our complete catalog on Laboratory Furniture and Equipment.

SECTIONAL LABORATORY FURNITURE and EQUIPMENT by

METALAB
Equipment Corp.

230 Duffy Ave., Hicksville, L. I., N. Y.

When inquiring check CP 3082 on handy form, pgs. 2-3

FOR THE LABORATORY

Maintains humidity as low as 15% in enclosed areas of 10,000 cu ft . . .

time delay action prevents undue rise of temperature

Uses: Portable dehumidifier is serviceable for heavy-duty moisture control.

Unit is said to be ideal for maintaining low humidities, even at difficult ambient temperatures, where year-round "cold-dry" protection is necessary.

Features: Time delay action assures that desiccant is thoroughly dehydrated and cooled before unit



Portable unit for heavy-duty moisture control

switches back to drying phase. This prevents undue rise of temperature in the room during beginning of drying cycle and it is said to increase unit's drying efficiency by 20%.

Second highlight is separate reactivation air-intake vent. This feature is said to make unit particularly adaptable for maintaining constant low humidity levels at constant controlled temperatures.

Description: Unit maintains humidity as low as 15% in enclosed areas up to 10,000 cu ft. Operating temperature ranges from -40 to 100°F. Model 25CT measures 21 inches in height and 14 inches in diameter.

Dehumidifier can be installed either inside or outside area to be protected.

Unit functions by drawing humid air through permanent dehydrating agent and then discharging the dry, dust-free air back into room.

The dehumidifier works in cycles. It dries for two-and-a-half hours and

the Height of Sanitation

BRADLEY DUO-WASHFOUNTAINS

Where nature of work requires sanitary wash facilities that allow thorough cleansing, Bradley DUO-Washfountains are first choice.

The Bradley DUO is foot-controlled. There are no faucets to touch or maintain. Each DUO serves two individuals simultaneously yet requires only half the plumbing connections needed for ordinary washbasins BRADLEY WASHFOUNTAIN CO., 2399 W. Michigan Street, Milwaukee 1, Wisconsin.

Full information is contained in Catalog K-711. Write today for your copy.

BRADLEY Duo Washfountains

Distributed Through Plumbing Wholesalers



Bradley DUO-Washfountain with sanitary foot-control operation.



When inquiring check CP 3084 on handy form, pgs. 2-3

Practical Lab Men Like Their Despatch OVENS



For development work and new product testing, Minn. Mining technicians approve the wide temperature range . . . variety of raw materials handled . . . capacity for large samples.

- Air velocity control
- Guaranteed heat elements —2700 to 12,000 Watts
- Precision indicating control
- Six models in wide range of capacities
- Accurate—speedy—rugged

Manufacturers of Ovens for all purposes

DESPATCH
OVEN CO.
Established 1902

Minnesota Mining & Manufacturing Company uses Despatch "V" Ovens in research and control of "3M" products and applications. Users of Despatch Ovens from its earliest days, this well-known company now has scores of them in its various departments. For information on how Despatch can be put to work on your laboratory and production problems, write for Bulletin No. 106.

343 Despatch Building
Minneapolis 14, Minnesota

When inquiring check CP 3085 on handy form, pgs. 2-3

CHEMICAL PROCESSING

SIFT to Better Quality!

With gravity sifting methods, there's always the danger of segregation during the sifting operation... depending on the nature of the mix and its ingredients. When you utilize centrifugal force, as in the

ABBÉ TURBO SIFTER

segregation just doesn't take place. As a matter of fact, users who have to contend with colored ingredients all stress the greater uniformity of color that the Turbo Sifter gives them. The same applies, of course, to ANY ingredients of a mix.

Get Speed, too... and Use Less Floor Space

This unique sifter requires just about 1/4 of the floor space of conventional types, but it will sift 2-10 times as fast, depending on the product involved... and will give you cleaner, more thorough separation.

If you're interested in sifting any material at lower cost and with better results, write for Bulletin 65, which tells the full story of the Abbé Turbo Sifter.

ABBÉ ENGINEERING CO. 46 CHURCH STREET
NEW YORK 7, N. Y.

Makers of

ABBÉ ENGINEERING Ball, Pebble and Jar Mills

When inquiring check CP 3086 on handy form, pgs. 2-3

For MODERN Chemical Analysis Product Grading Process Control

... Use the New **HELLIGE**

Chromatron

PHOTOELECTRIC COLORIMETER
and TURBIDIMETER

Easy 3-step Operation

Instantaneous Results

Unlimited Application

Completely Portable

Always Dependable



Please Send FREE Catalog No. 925

NAME

STREET

CITY

STATE

HELLIGE, INC. 877 STEWART AVENUE
GARDEN CITY, N. Y.

Write Today!

When inquiring check CP 3087 on handy form, pgs. 2-3

JUNE, 1952

FOR THE LABORATORY

vaporizes absorbed moisture for thirty minutes.

Unit switches from drying to reactivation phase automatically. Since desiccant is thus reactivated periodically by means of built-in heating element desiccant is said to have an indefinite life and need no replacement.

(Product of Dryomatic Corporation, Dept. CP, 812 N. Fairfax St., Alexandria, Va. . . . or for more information check CP 3083 on handy form, pages 2 and 3.)

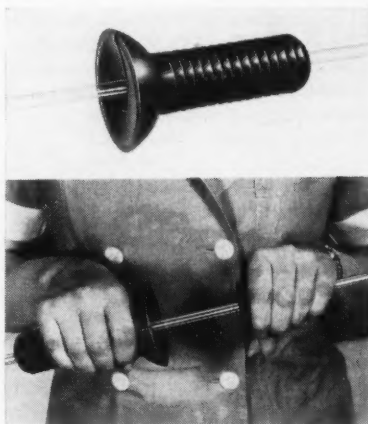
Eliminates hazards of inserting tubes into stoppers . . .

hands, wrists, and knuckles protected from injury

Uses: Protective aid when inserting glass tubes, rods, thermometers, etc into stoppers. Also may be used to safely break tubing to desired length after marking with a file or cutter.

Features: If tubing breaks, device protects hands, wrists, and knuckles from injury.

Description: Called Grip-Safe, the device is made of high-grade neoprene. It provides a gentle, but firm gripping action which permits



Top photo shows corrugated hand grip while bottom photo demonstrates use with thermometer

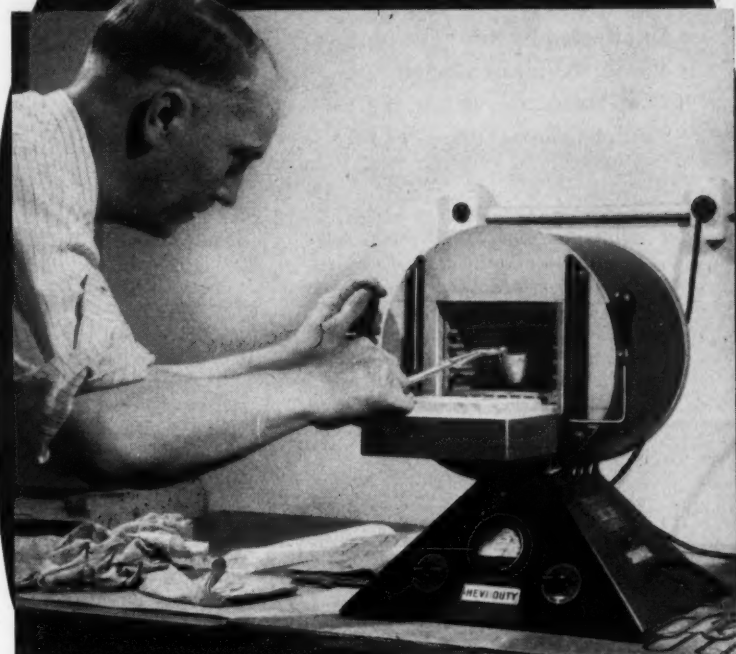
sliding the tubing into stoppers without the excessive or uneven pressure which tends to break the tubing.

Accommodates most sizes of commonly used tubing as well as irregular shaped tubing as T's and L's.

(A product of Labline, Inc., Dept. CP, 4710 W. North Ave., Chicago 39, Ill. . . . or for more information check CP 3088 on handy form, pages 2 and 3.)

MILWAUKEE COUNTY
uses a

"MULTIPLE UNIT" MUFFLE FURNACE



For Ash Analysis in Determining AIR POLLUTION

In its air pollution control work the Dept. of Smoke Regulation of Milwaukee County use this "Multiple Unit" Muffle Furnace for ash analysis of filtered solids.

This versatile furnace is also used

for proximate fuel analysis and many other operations requiring temperatures from 900° F. (480° C.) to 1850° F. (1008° C.). Learn more about Hevi Duty "Multiple Unit" Muffle Furnaces. See your Laboratory Supply Dealer or write for Bulletin LAB-849.

"MULTIPLE UNIT"

HEVI DUTY ELECTRIC COMPANY

MILWAUKEE 1, WISCONSIN

Heat Treating Furnaces... Electric Exclusively
Dry Type Transformers Constant Current Regulators

When inquiring check CP 3089 on handy form, pgs. 2-3

dynel

FABRICS FOR FILTRATION—WET OR DRY

PERFORMANCE WILL TELL—IT'S DYNEL

- Unaffected by most chemicals
- Won't shrink or stretch
- High strength—wet or dry
- Mildewproof—fungus-proof

WET FILTRATION—DYNEL diaphragms in copper plating tank pictured in automotive plant have use-life of 4 to 6 months, compared to 7 to 13 weeks of previous filter cloths. DYNEL cuts time, labor and replacement costs, increases operating efficiency.



DRY FILTRATION—DYNEL wool dust-fume bags outlast previous wool bags 9 to 1 in antimony smelter. In addition, they cost about half as much as and outlast other synthetic bags.



ACTION OF SOME CHEMICALS ON DYNEL (20-HOUR IMMERSION)

Acids	% Concentration	Temperature	Appearance	Loss in Strength	Warp	Filling
Sulfuric	70	50° C	No effect	8.8%	None	None
Hydrochloric	38	50° C	No effect	None	None	None
Hydrofluoric	50	Room	No effect	3.4%	2.0%	None
Nitric	40	50° C	No effect	None	None	None
Bases						
Sodium Hydroxide	50	50° C	No effect	None	6.6%	None
Ammonium Hydroxide	28	Room	No effect	None	None	None
Oxidizing Agents						
Hydrogen Peroxide	90	Room	Slight Bleaching	7.7%	5.5%	None
Sodium Hypochlorite	Commercial	50° C	No effect	None	None	None
Solvents						
Ethyl Alcohol	100	50° C	No effect	None	None	None
Diethyl Ether	100	Room	No effect	None	None	None
Carbon Bisulfide	100	Room	Slight Bleaching	None	None	None
Toluene	100	50° C	No effect	None	None	None

INVESTIGATE DYNEL!

This resistant new textile material can bring lower operating costs and increased economy to your plant.

Textile Fibers Dept.
Carbide and Carbon Chemicals Company
A Division of Union Carbide and Carbon Corp. **UCC**
30 East 42nd Street, New York 17, New York

Please send me:
☐ The DYNEL Chemical Resistance Folder
☐ A list of DYNEL filter cloth manufacturers

Name.....
 Company.....
 Address.....
 City.....Zone.....State.....

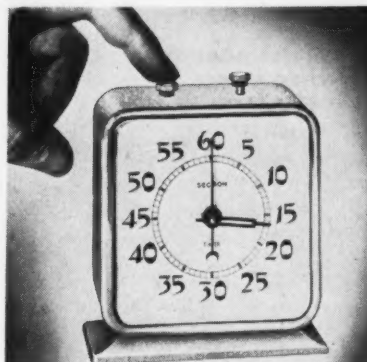
When inquiring check CP 3090 on handy form, pgs. 2-3

FOR THE LABORATORY

Clearly visible timer gives stopwatch accuracy...

sturdy stop-clock gives dependable readings in 36 hr movement

Capable of stop-watch accuracy, but even more sturdy, dependable second stop-clock has face that is visible even across the room. Called the "Secron", timer has a 36-hr movement controlled by two buttons on top — green for start, red for stop. Reset knob is on the back. Clear black-on-white dial



Clock has accuracy of stop watch

is marked in seconds, and a large sweep hand permits estimations to half a second. A smaller integrating hand registers total time elapsed up to 60 min. Case size is 4 x 4 1/2".

(Development of Precision Scientific Co., Dept. CP, 3737 W. Cortland St., Chicago 47, Ill. . . . or for more information check CP 3091 on handy form, pages 2 and 3.)

Instruments to detect radiation hazards

Government report establishes some basic guides for methods of determining radiation hazards, and surveys suitable instruments to measure them. Handbook explains different types of radiation detectors, measuring instruments, and personnel monitoring instruments. Report discusses instrument construction standards and various characteristics required.

General information in 33-page handbook covers hazard determination and control, airborne hazards, surface contamination, and counting alpha and beta particles. This discussion also reviews radiation-survey methods for monitoring radioactive isotopes in industrial installations. Report also describes air and water sampling equipment and methods.

To obtain "Radiological Monitoring Methods and Instruments," remit 15c direct to Government Printing Office, Washington 25, D. C.

When inquiring check CP 3092 on handy form, pgs. 2-3

SULPHUR

Many former users of sulphur have found that Sulphur Dioxide can be effectively and economically substituted for sulphur. Many industries have made this conversion and the results have been most satisfactory. Sulphur Dioxide can perhaps, be just as effectively adapted to your operation. One of our representatives would be glad to consult with you—no obligation to you, of course.

For further details, wire, phone or write the Tennessee Corporation, Grant Building, Atlanta, Ga.

SULPHUR-DIOXIDE
HIGHEST QUALITY
SO₂

TENNESSEE CORPORATION
619 Grant Building, ATLANTA, GEORGIA

When inquiring check CP 3092 on handy form, pgs. 2-3

Do you need this
new
1952
catalog?



- It describes and illustrates all models Bin-Dicator bin level indicators for thin or thick walled bins, inside or outside location and suspended interior installation in tanks, silos, hoppers and bins. Also describes Bin-Flo Aerator for keeping pulverized materials moving. Many wiring diagrams. Write for this helpful new catalog.

THE BIN-DICATOR CO.

13946-D Kercheval • Detroit 15, Mich.

When inquiring check CP 3093 on handy form, pgs. 2-3

Facilitates detection of end point by permitting sol'n to enter side tube . . .

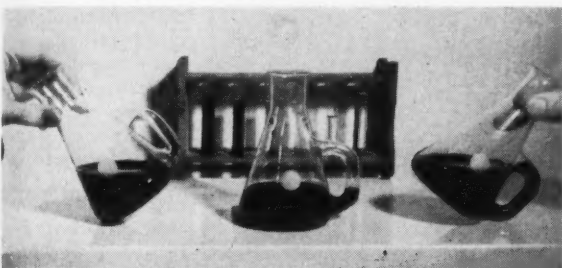
use should allow for greater number and speed in analytical determinations performed

Uses: Titrations, and particularly those where comparison against a known color standard must be performed.

Features: Easier detection of end points; greater speed in determinations.

Description: Jasonols No. JF 100 titration flasks are at present available in pyrex in 250 ml capacity. Side arm is 8 mm in diameter. Flasks of any size with standard tapered joints will be made upon request.

As seen in the right-hand view of the accompanying illustration, by permitting some of the solution to enter



the side tube, a change in color may be detected more readily than in the bulk of the flask. Because the color change will be more readily perceived and because the tilting manipulation can be readily performed during the titration without loss of time, greater speed and accuracy should accompany use of the flask.

(Manufactured by Jasonols Chemical Corp., Dept. CP, 1085-87 Myrtle Ave., Brooklyn 6, N. Y. . . . or for more information check CP 3094 on handy form, pages 2 and 3.)

Mineral-free water is delivered at rates of 5 or 10 gph steadily from tap . . .

demineralizer units using disposable refill charges operate directly from faucet

Uses: For applications where mineral-free water is needed (laboratories, pilot and small scale chemical processing, electroplating, etc).

Features: Both units operate directly from any water faucet and are supplied with adapters. Converted water (with a chemically ionic purity as low as 2 ppm at the start of a run) can be drawn off continuously or intermittently. Requires no heat, cooling, or power, other than the electric source. Indicator gives advance notice before exhaustion of refill charge.

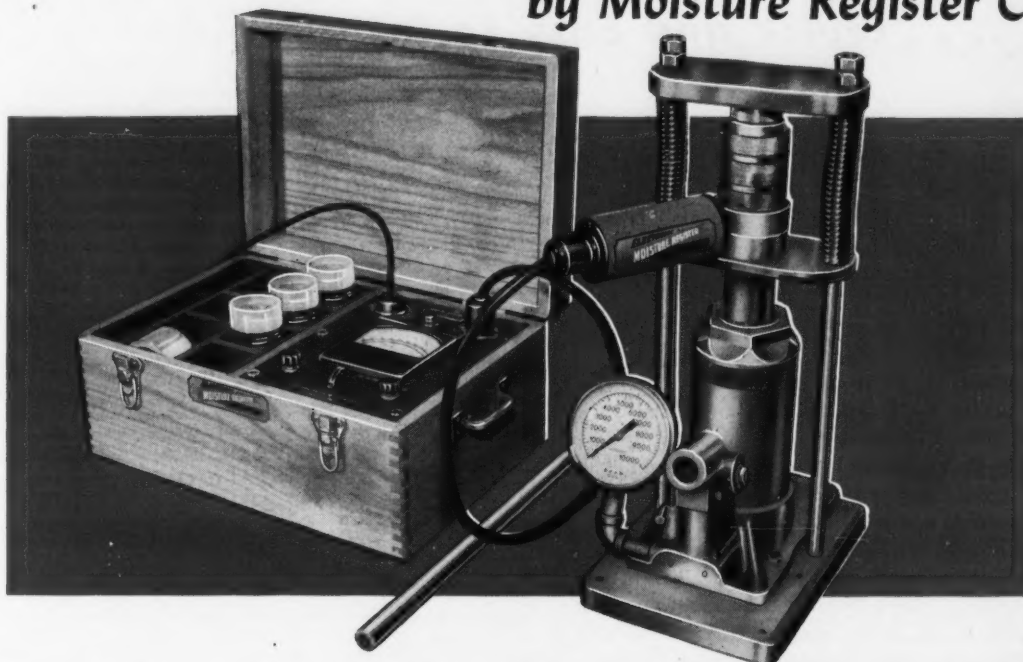
Description: Model C51L-S (Service) delivers up to 5 gph; Model C51L-H (General) up to 10 gph. Total weight including refill charge is 8 lb for the service model, 10 lb for the general. Indicator operates on less than 2w. Overall dimensions: 24 x 4 x 4". Body of canister is non-metallic. Units are furnished complete with inlet and outlet tubing, adapter for direct attachment to faucet, and an electric cord with standard plug.

(Development of A. E. Tomkin & Co., Dept. CP, 1828 Columbia Rd., N. W., Washington 9, D. C. . . . or for more information check CP 3095 on handy form, pages 2 and 3.)

JUNE, 1952

Presenting the G5

by Moisture Register Co.



An achievement in the field of scientific moisture testing on granular substances

- **VERSATILE and ACCURATE.** G5 combines many new patented features with "on-the-spot" testing to make it the finest granular moisture instrument in the field.
- **PLUG-IN RANGE BOX.** Contains the brains of the instrument. Boxes may be inter-changed to test wide variety of materials and moisture ranges.
- **PRESSURIZED SAMPLES.** Uniform samples without variations in particle arrangement are obtained by compressing test samples in pressure cup. Only G5 offers this vital feature to insure greatest accuracy.
- **RADIO FREQUENCY POWER ABSORPTION CIRCUIT.** Duplicates readings as low as 0% within close tolerances. Calibration standard furnished to check accuracy.
- **SUPPRESSED ZERO.** Greater accuracy obtained within the critical moisture range where most testing occurs. Allows more dial divisions for each moisture percent.
- **ONE MINUTE PER TEST.** Save 95% testing time. G5 gives immediate answers.
- **NO WEIGHT OR VOLUME MEASUREMENT.** Just fill the cup and apply pressure.
- **SKILLED TECHNICIANS NOT REQUIRED.** Anyone in the plant can operate G5 correctly.
- **RUGGED CONSTRUCTION.** G5 is built to take it. Vital parts protected against dust and dirt. Designed to withstand hard use on production line.
- **CHOICE OF POWER SUPPLY.** G5 equipped with plug-in standard batteries or voltage regulated line supply.
- **WRITE FOR BROCHURE.** Free four page colored brochure is available with complete details on Model G5 MOISTURE REGISTER. Address MOISTURE REGISTER COMPANY, 1510 West Chestnut Street, Alhambra, California, Dept. CP-1

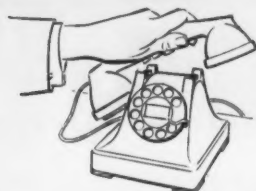
MOISTURE REGISTER TESTING EQUIPMENT IS THE STANDARD IN MOISTURE TESTING FOR ALL INDUSTRIES. OTHER MODELS FOR WOOD, WOOD WASTE MATERIALS, TEXTILE, PAPER, PAINTS, LEATHER, PLASTER, WALLBOARD, JUTE, GYPSUM PRODUCTS, ETC.

**ELECTRONIC
MOISTURE REGISTER**

MOISTURE REGISTER COMPANY

1510 WEST CHESTNUT STREET • ALHAMBRA, CALIFORNIA

When inquiring check CP 3096 on handy form, pgs. 2-3



Easy to Order! . . .

. . . Quick and Easy to Install!



Grinnell Welding Fittings

Any qualified welder can make welds quickly and easily with Grinnell welding fittings. These fittings are made by a hydraulic forging process that assures uniform wall thickness at all points and true circularity throughout. Of seamless, one-piece construction, they can be cut at any angle to match up with standard weight, extra strong and heavier wall pipe in I.D. or O.D. sizes. Pressure-temperature ratings are equal to or greater than those of seamless steel pipe. Grinnell welding fittings are process stress-relieved.

Full data on the complete line of Grinnell seamless carbon steel welding fittings and forged steel flanges is contained in the Grinnell Welding Fittings catalog. Send for a copy.

GRINNELL
WHENEVER PIPING IS INVOLVED

RANGE OF TYPES AND SIZES

Description	Standard Weight	Extra Strong	Schedule 160	Double Extra Strong	Light Gauge	
					Nominal Pipe Size	Iron Pipe Size
ELBOWS						
90° Long Radius	½"-30"	½"-30"	1"-12"	¾"-8"	4"-24"	¾"-12"
90° Long Tangent	1½"-12"	1½"-12"	.....	.....	.....	.....
90° Reducing	2"x¾" to 6"x5"	.....	.....	.....	.....	.....
90° Short Radius	1"-30"	1½"-30"	.....	.....	.....	.....
45° Long Radius	½"-30"	¾"-30"	1"-12"	¾"-8"	4"-24"	¾"-12"
RETURNS						
180° Long Radius	½"-30"	½"-30"	1"-12"	2"-8"	4"-24"	¾"-12"
180° Short Radius	1"-30"	1½"-30"	.....	.....	.....	.....
180° Ex. Long Radius	1"-2½"	1"-2½"	.....	.....	.....	.....
TEES — Straight	½"-24"	½"-24"	½"-12"	½"-8"	.....	.....
Reducing Outlet	½"-24"	½"-24"	¾"-12"	¾"-8"	.....	.....
REDUCERS Concentric & Eccentric	¾"-24"	¾"-24"	¾"-12"	¾"-8"	.....	.....
CAPS	¾"-24"	¾"-24"	1"-12"	1"-8"	.....	.....
STUB ENDS — Lap Joint	¾"-24"	¾"-24"	.....	.....	.....	.....
SADDLES	2"-24"	.....	.....	.....	.....	.....
LATERALS — Straight	1¼"-24"	1¼"-24"	.....	.....	.....	.....
Reducing	1¼"-24"	1¼"-24"	.....	.....	.....	.....
CROSSES — Straight	1¼"-24"	1¼"-24"	.....	.....	.....	.....
Reducing	1¼"-24"	1¼"-24"	.....	.....	.....	.....
BACKING RINGS	2"-24"	2"-24"	.....	.....	.....	.....

Also available in certain sizes are: 90° long and short radius elbows, 45° long radius elbows and 180° long and short radius returns in Schedules 30, 40, 60 and 80.

Grinnell welding fittings and flanges conform to applicable ASA and ASTM Standards.

FOR THE LABORATORY

**Extend viscosity range —
single instrument checks
0.5 to 2,000,000 cp . . .**

besides eight-speed model, ten other viscometers now available in single, and four-speed designs

Uses: Laboratory instrument for indicating viscosity can be taken into plant for checks of materials in process.

Features: Among the recently announced viscometers models is one with eight speeds (from 0.3 to 60 rpm) which measures viscosities between 0.5 and 2,000,000 centipoise.

Description: Model LVT Viscometer, an eight-speed instrument, has a speed range covering a 200-to-1 ratio. It is especially recommended where a wide range of viscosities is encountered. Reading directly in centipoise, the instrument is used by simply inserting the rotating spindle in the material to be tested. Entire determination, including cleaning up, takes only a minute or two. All instruments are completely portable, and are now designed with a built-in bubble level for consistent results.

Viscometers may be built to be explosion-proof. This modification is reported to add very little to their bulk. Of ten other single and four-speed models, some are available with spindle speeds up to 600 rpm.

(Developed by Brookfield Engineering Laboratories, Inc., Dept. CP, Porter St., Stoughton, Mass. . . or for more information check CP 3098 on handy form, pages 2 and 3.)

**When temperature changes 0.001°C
controller can apply
1700 watts . . .**

no exposed contacts are used — high performance standards are reported retained indefinitely

Uses: Precise temperature control of baths for refractometers, viscometers, pycnometers, and standard tests of all sorts. Unit can also be used to control heavier loads like ovens, furnaces, etc.

Features: No moving parts or exposed contacts are used in the regulator. This precludes any contact trouble and keeps regulation characteristics from changing and continued use.

Description: Electron-o-Therm employs a resistance thermometer combined with a precision bridge circuit, vacuum tube amplifier, and controller. Regulation sensitivity of 0.001°C is maintained throughout the entire range from minus 30° to 225°C. Heater capacity of the unit is 1700 watts. Other temperature ranges are available on order.

Resistance thermometer is hermetically sealed in pyrex glass. Heater load circuit is actuated through an enclosed mercury-to-mercury plunger relay. Both heater

CHEMICAL PROCESSING

GRINNELL WELDING FITTINGS ARE QUALITY-CONTROLLED FOR DEPENDABILITY



TRUE CIRCULAR SECTION

True circular section at all points makes a Grinnell fitting easy to align and weld . . . there is no distortion or no flattening to affect flow adversely.



FULL EFFECTIVE RADIUS

The loss of pressure through Grinnell welding elbows is held down to an absolute minimum . . . because of the full and the effective sweep of the radius.



SMOOTH, CLEAN INSIDE SURFACE

Grinnell Fittings have uniformly smooth inner walls . . . no waves or ridges to cause turbulence or accelerate erosion or corrosion. No pockets to trap solids.



EASY, SWEEPING TURNS

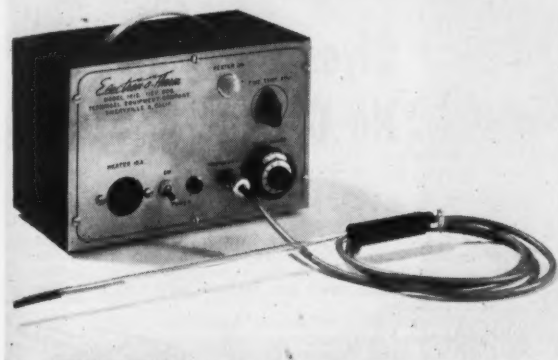
In Grinnell welding tees, corners where outlet joins the run are well-rounded and perfectly smooth to minimize resistance to flow and to prevent trapping.



Grinnell Company, Inc., Providence, Rhode Island • Coast-to-Coast Network of Branch Warehouses and Distributors

pipe and tube fittings • welding fittings • engineered pipe hangers and supports • Thermolier unit heaters • valves
Grinnell-Saunders diaphragm valves • pipe • prefabricated piping • plumbing and heating specialties • water works supplies
industrial supplies • Grinnell automatic sprinkler fire protection systems • Amco air conditioning systems

When inquiring check CP 3097 on handy form, pgs. 2-3



Standard range is minus 30 to 225°C. Other ranges can be furnished

and electronic circuit are fused for safety and the entire unit is housed in a metal cabinet built to withstand hard use.

(Designed and built by Technical Equipment Co., Dept. CP, 4348 San Pablo Ave., Emeryville 8, Calif. . . or for more information check CP 3099 on handy form, pgs. 2-3.)

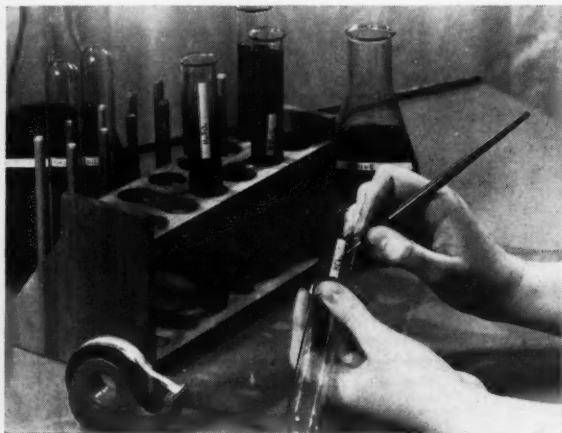
Even broken pencil can be used to mark acetate labels in laboratory . . .

transparent acetate film tape permanently reproduces any information; is non-erasable, smudge-proof

Uses: For labeling slides, bottles, test tubes, beakers, and other chemical and laboratory equipment.

Features: Any blunt-pointed object can be used to make identifying marks on transparent acetate film. Messages are permanently smudge-proof, non-erasable.

Description: "Mark-On" tape can be applied to any clean and dry metal, plastic, glass, wood, or paper sur-



Information is permanently inscribed with blunt instrument

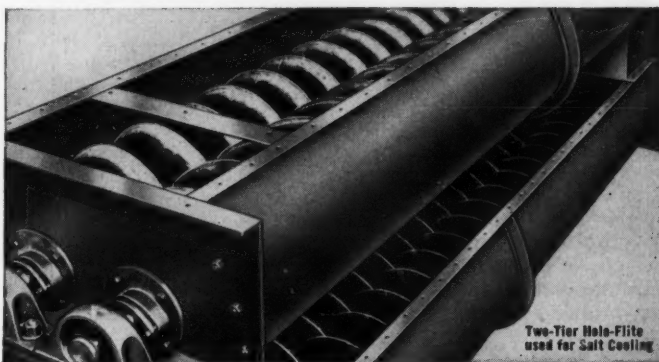
faces. It is resistant to water, acid, and oil spillage, but can be washed without harming message or adhesive. Tape is available in 1/2 and 3/4" widths on 648" rolls. The 1/2" width has 1/4" writing surface, while the 3/4" width has 3/8" writing surface.

(Product of The TapeMark Co. Dept. CP, 321 Cedar St., St. Paul, Minn. . . or for more information check CP 3100 on handy form, pages 2 and 3.)

*A revolutionary new principle
in Coolers . . .*

**THE
holo-flite^{*} PROCESSOR**
(HOLLOW-FLITE)

Backed by the same well-known organization that pioneered COTTRELL Precipitators, MULTICLONE Collectors and other leading products, the HOLO-FLITE Processor represents a far-reaching advancement in the science of heat-exchanger design. Widely adaptable to various types of cooling and similar applications in industrial processing operations, the HOLO-FLITE handles powdered or granular solids, moist pastes or slurries with equal facility. Moreover, it requires as little as 1/5th the space of other heat exchangers . . . causes no dust, therefore requires no costly or complicated auxiliary recovery equipment . . . and maintains its uniformly high efficiency under modern continuous-flow operations (no stop-and-go "batching" operations are necessary).



Unique Simplicity

Basically, the HOLO-FLITE consists of two or more hollow intermeshing conveyor screws that slowly rotate in a trough or tube. The cooling agent circulates through the hollow flights and shafts of the conveyor screws while the product itself "flows" in the trough where it is constantly rotated into, around, over and under the moving heat-exchange surfaces. The continuous mixing, turning, folding action causes a constant change of contact with the heat-exchange surfaces and results in a high rate of heat transfer. Yet the action is so gentle that there is no dusting and little, if any, abrasion of crystalline particles.

Unlimited Capacity

HOLO-FLITE Processors can be readily adapted to virtually any capacity requirement and are in daily operation on such varied products as sand, cement, cottonseed cake, soybean meal, borax, salt, sugar, baby foods, and many other products. Cooled products can be packaged directly from the HOLO-FLITE discharge, saving time, space and additional handling.

Be sure to investigate HOLO-FLITE savings before you install heat-exchange equipment. To insure maximum operating efficiency at low overall cost, each installation is individually engineered to the job using basic stock-size elements. Contact the nearest Western Precipitation office for further details on the revolutionary HOLO-FLITE Processor—or write direct!



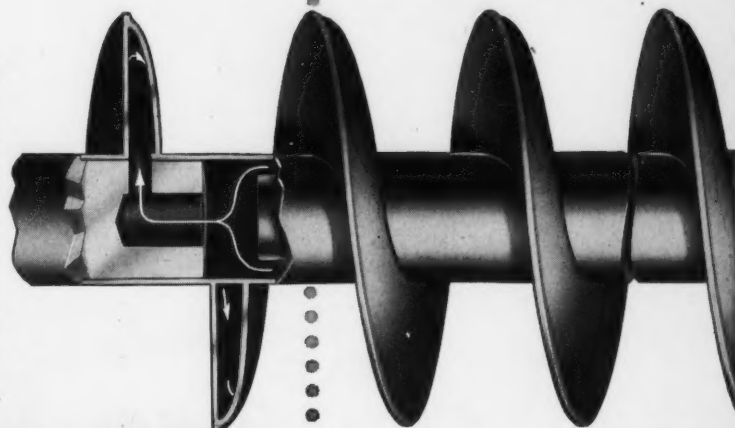
FREE! New 8 Page Bulletin describing HOLO-FLITE features and applications will gladly be sent on request!

*Reg. T.M.

► Handles Pastes, Sludges or Solids!

► Up to 80% Saving in Space!

► Permits Continuous, High Efficiency Operation!



A FEW OF MANY HOLO-FLITE ADVANTAGES

WIDE ADAPTABILITY: HOLO-FLITE handles fine-grained, crystalline or powdered solids, pulps, pastes and slurries with equal ease. Heat transfer agent can be refrigerant, cooled or ambient water, or other fluids to provide a wide range of processing temperatures.

SPACE-SAVING COMPACTNESS: Because of its large active heat-transfer surface per cubic foot of space required, the HOLO-FLITE requires only a minimum of space—is 5 to 6 times as compact as other equipment of comparable capacity!

LOW POWER REQUIREMENTS: HOLO-FLITE conveyor screws rotate slowly—usually only 1 to 12 r.p.m. Further, multiple tiers can be driven by one motor, assuring low power consumption.

INSTALLATION FLEXIBILITY: The basic HOLO-FLITE unit is two intermeshing screws in a single trough, but four or six screws per trough can also be installed. Moreover, any number of troughs can be "tiered" on top of one another—trough lengths can be varied from 8 to 20 ft.—screw diameters can be varied from 7" to 16"—to provide virtually any desired capacity in a minimum of space!

Write for full details on the many savings the HOLO-FLITE Processor can bring to your particular applications.

**WESTERN
Precipitation
CORPORATION**

ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR
COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

Main Offices: 1023 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA
CHRYSLER BLDG., NEW YORK 17 • 1 N. La SALLE ST. BLDG., CHICAGO 2
1429 PEACHTREE ST. N.E., ATLANTA 5 • HOBART BLDG., SAN FRANCISCO 4
PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

When inquiring check CP 3101 on handy form, pgs. 2-3

Put the heat on dehydrating problems

A Kirk & Blum Oven removes 900 lbs. of water from 1700 lb. chemical load at Tennessee Eastman Corp., Kingsport, Tennessee.

with a
KIRK AND BLUM
oven

Specially designed to solve difficult problems . . . KIRK and BLUM Ovens meet any dehydrating needs. The large oven illustrated was built to insure complete removal of moisture as it is taken up by warm air . . . eliminating subsequent deposit on other trays. Four separate compartments each individually controlled for temperature and air circulation in this steam heated oven allows removal of finished loads at any time.

This KIRK and BLUM Oven was shipped completely assembled, thoroughly tested and ready to operate.

It is another example of the diversity of drying problems skillfully solved by KIRK and BLUM engineers. If you have a problem involving ovens . . . feel free to consult with a KIRK and BLUM engineer . . . there is no obligation.

Write for booklet . . . "Industrial Ovens". The Kirk & Blum Mfg. Co., 3133 Forrer St., Cincinnati 9, Ohio.

LABORATORY OVEN . . . electrically heated . . . automatically controlled and timed . . . suitable for test and research . . . or for small production.

KIRK AND BLUM
LABORATORY AND
INDUSTRIAL OVENS

When inquiring check CP 3102 on handy form, pgs. 2-3

FOR THE LABORATORY

Colorimeter's filters are arranged in a dial . . .

any one of seven colors in visible spectrum is easily selected

Uses: Colorimetric and turbidimetric determinations within the visible spectrum. While designed for laboratory use, batteries convert this unit into a practical and portable instrument.

Features: Color filters are of permanent glass and are arranged on a dial wheel so that filter selection can be made quickly from the front panel.

Description: Chromatron Photoelectric Colorimeter and Turbidimeter measures color intensity by indicating per cent transmission with appropriate color filters. Indicating meter is directly connected to photocell, and pre-focused and adjusted bulb is powered by a constant voltage transformer (when AC power is used).

Lamp of the Chromatron is operated well below rated wattage. Besides assuring long lamp life, this means that no warmup is required and heat effects are held to a minimum. Since the voltage required is low, two batteries can be used as the sole power source for the instrument.

Either square or round absorption tubes may be used. Made of Pyrex, these tubes are rugged and will stand considerable abuse. In cases where extremely dark liquids (inks, etc)



Dial (upper right) selects filter

are being tested, glass rods can be supplied to be inserted in the tubes. Reduced thickness of liquid which results from the glass rod brings readings into the normal range.

Color filters themselves come in seven steps — all in the visible spectrum: 415, 470, 495, 530, 565, 600, 640, and 700 millimicrons. Their

Preventive maintenance with Ucilon* Coatings



**Gives Corrosion
No Chance to Start**

With today's shortage of metals, many companies are putting greater emphasis on preventive maintenance than ever before. They have found that using chemical resisting Ucilon Protective Coatings on a regular basis avoids corrosion damage to equipment, minimizes not only the need for replacement but also the costly downtime.

Ucilon Coatings are based on highly chemical resistant materials. They include vinyl, chlorinated rubber, phenolic or fish oil formulations. Systems of various Ucilon Coatings have been devised for: (1) The formation of a protective film which is an effective barrier to particular corrosives. (2) Maintenance of adhesion and resistance to undercutting in the event of damage.

Get the concise facts — write for 4-page bulletin.

*Trade Mark



UCILON Protective Coatings

Trade Mark

One Group of the Many **UNICHROME** COATINGS FOR METALS

UNITED CHROMIUM, INCORPORATED 100 East 42nd Street, New York 17, N. Y.
Detroit 20, Mich.—Waterbury 20, Conn.—Chicago 4, Ill.—Los Angeles 13, Cal.
In Canada: United Chromium Limited, Toronto, Ont.

When inquiring check CP 3103 on handy form, pgs. 2-3

NEW FRACTIONAL to 20 G.P.M.
POLYETHELENE
WITH NATURAL RUBBER,
GUM, NEOPRENE, BUNA,
HYCAR PUMPS

"flex-i-liners"



Fluid only contacts outer surface of "FLEX-I-LINER" and inner surface of body block. 35 combinations of rubber and plastic "flex-i-liners" and pump body blocks. Models available from fractional to 20 G.P.M., Vinyl and compare "flex-i-liners" also available in pumps to 5 G.P.M. capacities. Widely used in chemical, food, pharmaceutical and other process industries—wherever non-contaminating pumping is required. Excellent for slurries. Write for literature.

NO GASKETS NO VALVES NO STUFFING BOXES SELF LUBRICATING

VANTON PUMP CORP.

Empire State Bldg. Dept. CP6 N.Y., N.Y.

When inquiring check CP 3104 on handy form, pgs. 2-3

"FLUID NEVER TOUCHES METAL"

VANTON

NON CORROSIVE
CONTAMINATING

**flex-i-liner
PUMPS**

CHEMICAL PROCESSING

FOR THE LABORATORY

location in the instrument protects them from being smudged or scratched.

Photocell is filled with inert gas and hermetically sealed. It drives the meter directly. Parallax is reduced to a minimum in reading meter, since it is of the mirror type. Coarse and fine controls for calibration govern the power to the illuminating lamp rather than to the photocellmeter circuit.

Constructed of heavy-gage weld steel, instrument housing is $8\frac{1}{2} \times 6\frac{1}{2} \times 7\frac{3}{4}$ inches. Meter and control panel are sloped which results in easier reading.

Protection from corrosion is attained through a tough coating and stainless working parts. Removal of four screws permits housing to be opened, exposing all working parts. Any standard AC power or batteries may be used.

(Product of Hellige, Inc., Dept. CP, 877 Stewart Ave., Garden City, N. Y. . . . or for more information check GP 3105 on handy form, pages 2 and 3.)

Precision timing? If 1/8,000,000 second is precise, yes . . .

reads in microseconds and eighths of a microsecond

Where very precise time measurements must be made from electrical, mechanical, or photo signals, Model 470 Counter-Chronograph can be used. Operating simplicity and ease of reading are featured by this instrument despite its difficult task of measuring time intervals as small as 0.000000125 second.

Time signal generator of the counter is an eight-megacycle crystal housed in its temperature controlled oven. Gating techniques produce a discrete measurement with a least count of $\frac{1}{8}$ -microsecond. Register of the timer is a bank of 1-2-4-8 neon lights which can be read to decimals of one second and fractions of one microsecond. For longer intervals, timer can be connected to an external second-counter and it will recycle automatically.

(Developed by Potter Instrument Co., Dept. CP, 115 Cutter Mill Rd., Great Neck, N. Y. . . . or for more information check CP 3106 on handy form, pages 2 and 3.)

For more information on product advertised at right, specify CP 3107 . . . see information request blank between pages 2-3.



SWENSON EVAPORATOR CO. DIVISION OF WHITING CORPORATION 15667 Lathrop Avenue Harvey, Illinois

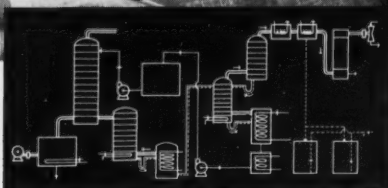
Sales Offices in Principal Cities. Export Department: 30 Church Street, New York 7, N. Y.
In Canada: Whiting Corporation (Canada) Ltd., 185 Eileen Ave., Toronto 9

IN THE manufacture of pharmaceuticals, as well as foods and chemicals, Swenson Spray Dryers speed the production of uniform quality products at low cost. At Upjohn's, Swenson spray drying is an important step in processing *Somagen*, a preparation of proteins and carbohydrates reinforced with vitamins.

"We're giving **TANTALUM**
the job!..."

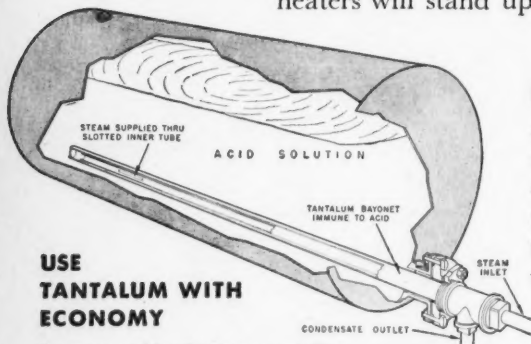


a \$3,000,000
process depends on
a \$450 heater!



Acid-Proof TANTALUM Bayonet Heaters

"If this one little heater goes out, we would have to shut down \$3,000,000 worth of associated equipment. We can't take that chance. We know that tantalum heaters will stand up. Put them in!"



USE TANTALUM WITH ECONOMY

for most acid solutions, corrosive gases or vapors; not with HF, alkalis or substances containing free SO₃.

WRITE FOR INFORMATIVE BULLETINS ON ACID-PROOF TANTALUM CHEMICAL EQUIPMENT

TANTALUM
the most nearly
perfect material
of construction

Acid-Proof

TANTALUM

22404C

Fansteel Metallurgical Corporation NORTH CHICAGO, ILLINOIS, U.S.A.

When inquiring check CP 3108 on handy form, pgs. 2-3

FOR THE LABORATORY

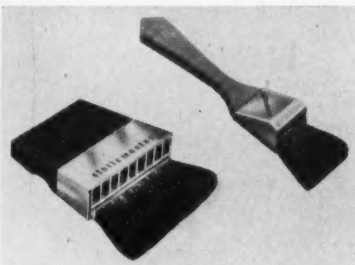
**One brushing action
frees surfaces of
static charges . . .**

once neutralized, surfaces will remain clean of dust, lint

Uses: Removes dry chemicals that cling to balance pans and watch glasses; cleans dust and lint from lenses, mirrors, prisms, etc; cleans negatives, color transparencies, film holders, enlargers, etc.

Features: Once neutralized, surfaces will not re-attract dust, foreign matter, or lint until recharged by rubbing or handling.

Description: Polonium is built in the ferrule of the Staticmaster brush, and because it is an alpha emitter, it neutralizes any surface in close proximity. Freed of static



Polonium strip is built into ferrule of brush

charge, the smallest particles of foreign matter can then be brushed away with the camel's hair bristles.

Staticmasters are dated like film and carry an unconditional guarantee of one year, although the effective life of the polonium strip is stated to be 2 years. Two models; 1 and 3" sizes.

(Product of Nuclear Products Co., Dept. CP, 2150 Newport Blvd., Costa Mesa, Calif. . . . or for more information check CP 3109 on handy form, pages 2 and 3.

Condensed catalog of 1000 scales

Complete specifications and spot illustrations of scales are included in 28-page catalog. Condensed catalog offers selection of 1000 models which have capacities from 1/64 oz to 400 tons. Units are arranged by types of weight capacity, and simple index gives quick location of model.

Catalog features scales with beam indication, tape-drive dial, weightograph projection, and teleprint electronic remote weight recorder. Cat 11 is issued by The Howe Scale Company, Dept. CP, Rutland, Vt. When inquiring specify CP 3110 on handy form, pages 2 and 3.

Rejects Drop to ZERO

at Coating
Inspection Station
with

BLAK-RAY

At the American Microphone Co., of Pasadena, Calif., transmitter elements for military telephone hand sets were tropicalized by coating with a transparent fungicidal varnish. Under ordinary light, gaps in the varnish were undetectable. However, an additive in the varnish fluoresced brilliantly under ultra-violet light. When the varnish was applied under BLAK-RAY lamps, any lack of coverage was immediately detected and corrected by the processor. Rejects at the inspection station due to improper tropicalization dropped to zero!

BLAK-RAY is ready to help with YOUR inspection and control — write for free bulletin No. 4. Address inquiries to Dept. CP-6

ULTRA-VIOLET PRODUCTS, INC. - SOUTH PASADENA, CALIF.
MANUFACTURERS OF ULTRA-VIOLET EQUIPMENT SINCE 1932

When inquiring check CP 3111 on handy form, pgs. 2-3

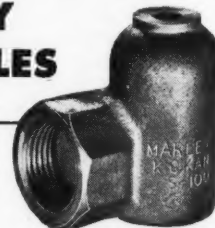
For Maximum Break-up at Lowest Pressures...

MARLEY NON-CLOGGING

SPRAY NOZZLES

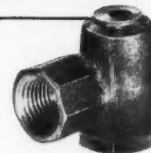
one-piece

designed for
large capacity
service.



two-piece

an all service nozzle
that can be easily
cleaned without
removal from pipe.



atomizing

a real mist-maker that leaves
no unbroken drops
of water.



Marley nozzles are manufactured for the air conditioning, refrigeration and processing industries by the Marley Company, world's leading producer of water cooling equipment. Write today for Bulletin SN3-51.



The Marley Company Inc.

Kansas City 5, Missouri

When inquiring check CP 3112 on handy form, pgs. 2-3

CHEMICAL PROCESSING

FOR THE LABORATORY

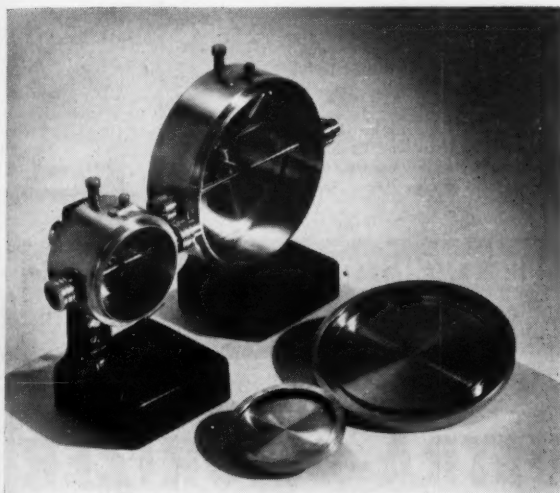
Cameras for X-ray diffraction have high alignment precision . . .

films exhibit exceptional cleanliness in low angle forward reflection area

Uses: For X-ray diffraction work.

Features: Cameras are easily aligned with X-ray beams. The film is positioned for calibration without high angle lines. Films indicate low air scatter with clear patterns in forward reflection area.

Description: Powder cameras are available in two sizes, 114.59 and 57.3 mm diameters. Large camera will record up to 17 Angstroms with copper radiation and up to 26 Angstroms with chromium radiation.



Covers are easily removed and replaced

High intensities, requiring shorter exposure time, as well as better relative intensities are incorporated. Low background and high resolution are also obtained. Cameras are readily adaptable to tracks of other standard types of X-ray diffraction apparatus. They use 35 mm film and bodies are satin chrome finish.

(Announced by Research & Control Instruments Division, North American Philips Co., Inc., Dept. CP, 750 South Fulton Ave., Mount Vernon, N. Y. . . . or for more information check CP 3113 on handy form, pages 2 and 3.)

Control detects temp changes as small as .0005°C

Thirty-page catalog lists features of thermistors, which may be used to detect, measure, and control physical energy. Introductory pages present general information on operating characteristics of instrument. Electronic, semi-conductor control elements are intended for use in time delay devices, vacuum gages, voltage regulators, and in measurement or regulation of temperature. Instrument detects temperature changes as small as 0.0005°C.

Curves are plotted to show temperature-resistance ratio characteristics for rod, disc, and washer type controls. Other graphic material covers typical static volt-ampere characteristics. Wiring diagrams are included with several suggested applications. Cat TH-5 is issued by Carboloy, Department of General Electric Company, Dept. CP, Detroit 33, Mich. When inquiring specify CP 3114 on handy form, pages 2 and 3.

JUNE, 1952

Western
Electric
helps
ring the bell



with
**KINNEY
HIGH VACUUM
PUMPS**

Electronic tubes for rural telephone circuits make two trips around this rotary sealing machine before they take the big trip to the country. First, the tubes receive their glass envelopes, after which they are evacuated and sealed under ultra-high vacuum . . . created by Kinney Vacuum Pumps.

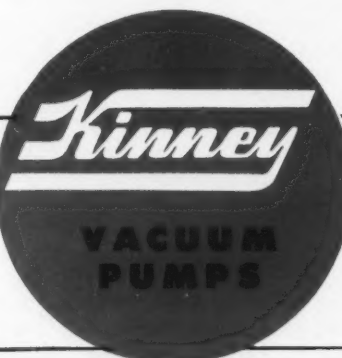
To insure proper operation and long tube life, every trace of oxygen must be exhausted from the tubes before sealing. Kinney Vacuum Pumps are used in this and thousands of other automatic exhaust machines throughout the world. They combine these all-important features: fast recovery speed, low ultimate pressures,

and complete dependability.

There's a Kinney Pump for every vacuum requirement — whether you're working to 1 mm. Hg., ten microns, or a tenth of a micron — from the new giant 1600 cu. ft. per min. model to the midget Model CVM 3153 with a free air displacement of only 2 cu. ft. per min.

Send coupon today for complete details. KINNEY MANUFACTURING CO., Boston 30, Mass. Representatives in New York, Chicago, Cleveland, Philadelphia, Houston, New Orleans, Los Angeles, San Francisco, Seattle.

FOREIGN REPRESENTATIVES: Gen'l Engineering Co., Ltd., Radcliffe, Lancs., England • Horrocks, Roxburgh Pty., Ltd., Melbourne, C.I. Australia • W. S. Thomas & Taylor Pty., Ltd., Johannesburg, South Africa • Novelectric, Ltd., Zurich, Switzerland • C.I.R.E. Piazza Cavour 25, Rome, Italy.



KINNEY MANUFACTURING CO.
3573 WASHINGTON ST.,
BOSTON 30, MASS.

Please send new Bulletin V-51B. Our vacuum problem involves:

- | | |
|---|--|
| <input type="checkbox"/> Vacuum exhausting | <input type="checkbox"/> Vacuum distillation |
| <input type="checkbox"/> Vacuum dehydration | <input type="checkbox"/> Vacuum metallurgy |
| <input type="checkbox"/> Vacuum coating | <input type="checkbox"/> Vacuum research |

Name _____

Company _____

Address _____

City _____ State _____

When inquiring check CP 3115 on handy form, pgs. 2-3

If your process requires the valving of "hard-to-handle" fluids . . .



HILLS-McCANNA
Saunders Patent
diaphragm valves
provide
the answer

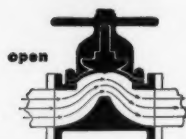
**Leakproof valving of air . . .
corrosive materials . . . slur-
ries . . . solids . . . volatile and
viscous substances**

Hills-McCanna Diaphragm Valves can eliminate the problems involved in valving many of the so-called "hard-to-handle" fluids. By employing a simple pinch clamp principle, Hills-McCanna valves put an end to leakage, repacking and contamination.

Hills-McCanna Valves are available handwheel or lever operated or for operation by pneumatic or hydraulic cylinders, diaphragm motors, electric motors, etc. Choice of 14 diaphragm materials, 49 body materials. Sizes from 3/4" to 14". Suitable for pressures to 150 psi., temperatures to 180° F. (higher with special materials). Screwed or flanged connections.

Write for Catalog V-52, **HILLS-McCANNA CO.**, 2370 W. Nelson St., Chicago 18, Ill.

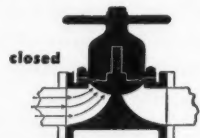
**THIS SIMPLE PRINCIPLE
ASSURES POSITIVE
LEAK TIGHT
VALVING**



Compressor is raised, lifting diaphragm by means of a stud molded into the material.



Compressor and diaphragm partially lowered. Compressor design guides and supports diaphragm.



Compressor presses diaphragm tightly against weir, pinching off flow and making a tight seal.

HILLS-McCANNA

saunders patent diaphragm valves

Also Manufacturers of Proportioning Pumps

Force Feed Lubricators • Magnesium Alloy Castings

When inquiring check CP 3116 on handy form, pgs. 2-3

FOR THE LABORATORY

**Analytical reagents
available . . .**

Three reagents specific for certain ion and functional groups have recently become available from manufacturer. Anthrone, C. P. is for the detection of carbohydrates. Its use has been discussed in the literature for estimation of serum polysaccharides.

One of the major reagents used in determination of chloride content of various body fluids — silver iodate, C.P. — is available in manufacturer's high purity line.

The third chemical, sodium betanaphthyl phosphate, C.P. is employed for the determination of acid and alkaline phosphatase. Essentially the method consists of incubating the enzyme source with a buffered solution of the reagent at 37.5°C. The beta naphthol released in the course of the reaction is coupled with a dye, naphthanil diazo blue B. The purple azo dye formed is extracted with ethyl acetate and the quantity is measured colorimetrically.

(Available from Fisher Scientific Co., Dept. CP, 717 Forbes St., Pittsburgh 19, Pa. . . or for more information check CP 3117 on handy form, pages 2 and 3.)

Publishes symposium on bulk sampling

Six papers and discussions comprise 72-page report of symposium on bulk sampling. Purpose of symposium was to report on problems of sampling materials that occur in bulk form or in packages. Project was sponsored by American Society for Testing Materials.

Special attention was given to describing methods whereby 1) bulk materials can be sampled to produce knowledge of average with measurable error, 2) constancy of property within bulk can be determined, and 3) the desired constancy between incremental portions at the point of consumption can be maintained.

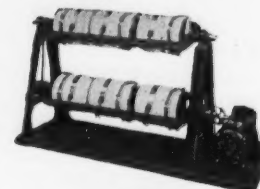
Graphs, tables of data, and formulas supplement discussion in six papers. Among topics covered are problems and procedures of coal sampling, two-stage sampling, accumulation of variance data, and analysis of variance in a sampling experiment.

To obtain booklet STP No. 114, remit \$1.75 direct to American Society for Testing Materials, Dept. CP, 1916 Race St., Philadelphia 3, Pa. When inquiring specify CP 3118 on handy form, pages 2 and 3.

For ALL Your Grinding • Mixing • Blending Operations

**ABBÉ
ENGINEERING
MILLS**

● Low Over-all Operating Costs because of efficient design, sturdy construction based on long years of experience in your kind of grinding.



● Any Materials . . . colors, pigments, paints, printing inks, coatings, metals, minerals, chemicals, plastics, drugs, cosmetics, foods, etc.

● Capacity as you need it . . . from one quart jar mills to 3000 gallon and larger pebble or ball mills.

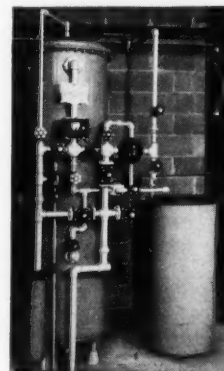
Abbé Jar Mills, Jar Rolling Machines and Ball and Pebble Mills are thoroughly covered in individual catalogs. Write for copies.



ABBÉ ENGINEERING CO. 46 CHURCH STREET
NEW YORK 7, N. Y.
Makers of
ABBÉ ENGINEERING Ball, Pebble and Jar Mills

When inquiring check CP 3119 on handy form, pgs. 2-3

ULTRA-DEIONIZER Produces Highest Quality Mineral-Free Water



This remarkable single tank, mixed-bed ion exchange unit produces deionized water for less than 25 cents per 1000 gallons (based on 10 grain water).

FEATURES

- Replaces Distillation or Evaporation — at 1% to 10% of the cost
- Removes All Ionizable Impurities — including CO₂ and silica
- Up to 44% Greater Capacity — double-check design
- Requires Minimum Space — lower investment cost

Write for Bulletin 512

ZEOLITE WATER SOFTENERS

New Bulletin 611 describes "Double-Check" type water softener that delivers up to 44% more soft water. Also covers complete line of equipment and treatment for any water conditioning need. Write for your copy.

ELGIN

SOFTENER CORPORATION

180 North Grove Avenue, Elgin, Illinois
WATER CONDITIONING SINCE 1908

When inquiring check CP 3120 on handy form, pgs. 2-3

Characterizes series of alcohols and phenols by forming corresponding ethers . . .

derivatives are easily isolated; reaction proceeds without formation of troublesome side products

Uses: To characterize a series of alcohols and phenols by formation of the corresponding solid phthalimidomethylene ethers.

Features: Reagent can be stored long periods of time without loss of activity. Derivatives may be formed even with low molecular weight compounds, and the derivatives are easily isolated. Reaction may be run under other than anhydrous conditions, and it proceeds smoothly without formation of troublesome side products.

Description: N-Bromomethylphthalimide is a crystalline white solid having a melting point of 149-150°C. It is soluble in most organic solvents and in hot water. The bromine atom has considerable activity and is capable of reacting with hydroxyl groups to yield phthalimidomethylene ethers — as indicated above.

Method of use is to carry out the reaction in an acid medium. Presence of a trace of KI accelerates the reaction. It is thought that the more reactive iodo compound is formed *in situ*. The time of reaction increases with increasing molecular weight of the hydroxy compound.

Reaction is most favorably carried out in benzene solution; dioxane may also be used. Ethanol is undesirable because of the possibility of transesterification.

**Phthalimidomethylene Ethers
Reported in Literature**

Alcohol	Crystallized from	mp°C (uncorr)
Methanol	Ethanol	120-121
Ethanol	Hexane	81-93
1-Butanol	Hexane	46-47
Isobutanol	Acetic acid-H ₂ O	58-59
1-Tetradecanol	Hexane	65-66
1-Hexadecanol	Methanol	70-71
1-Octadecanol	Hexane	80-81
Cyclohexanol	Hexane	81-83
Phenethyl	Hexane	72-74
2,2-Diphenylethanol	Benzene-Hexane	111-112
Thymol	Benzene-Hexane	142-143
Triphenyl carbinol	Benzene-Hexane	124-125
Benzopinacol	Benzene-Hexane	136-138
Propylene glycol	Acetic acid-H ₂ O	136-146
Phenol	Benzene	204-205
beta-Naphthol	Acetic acid	196-198

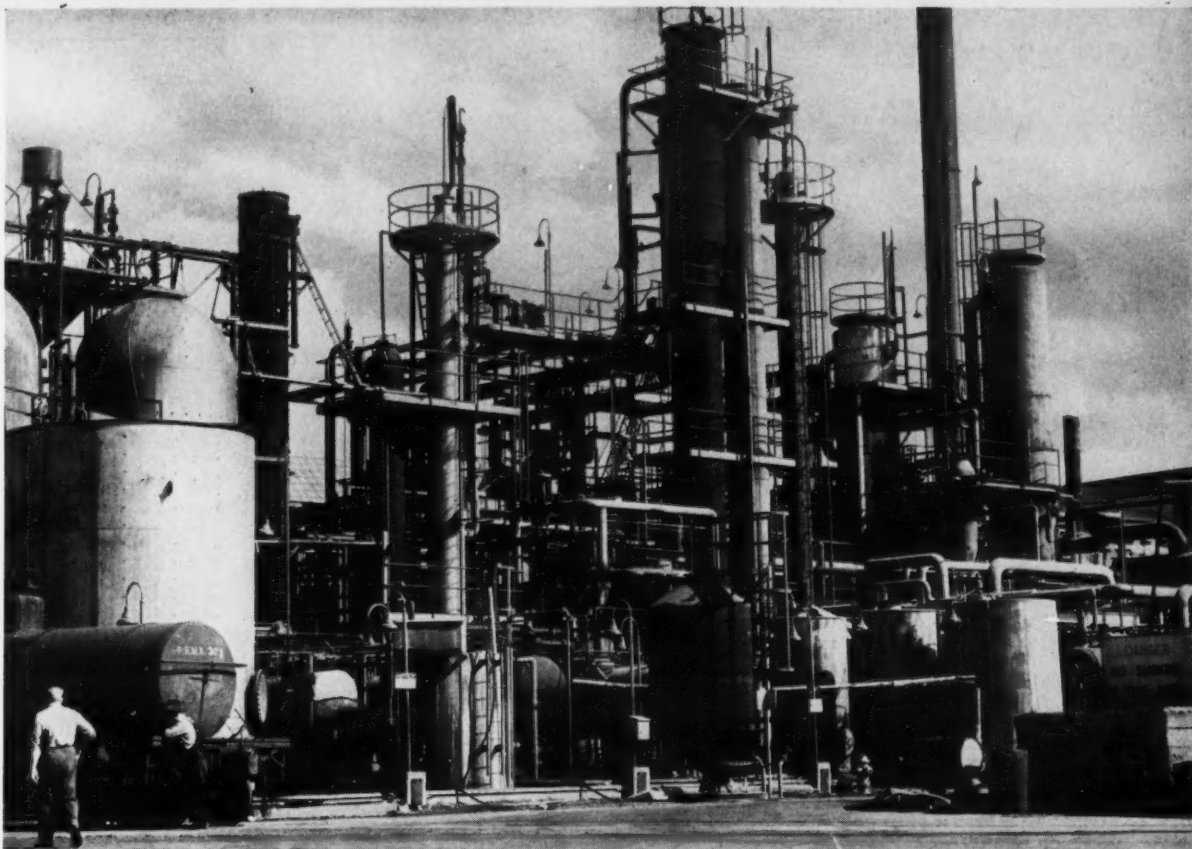
Reagent is available in research lots of 10, 100, and 1000 gm bottles.

(Product of Monomer-Polymer, Inc., Dept. CP, 511 Lancaster St., Leominster, Mass. . . or for more information check CP 3121 on handy form, pages 2 and 3.)

**Direct transmittancy recording of
infrared absorption spectra**

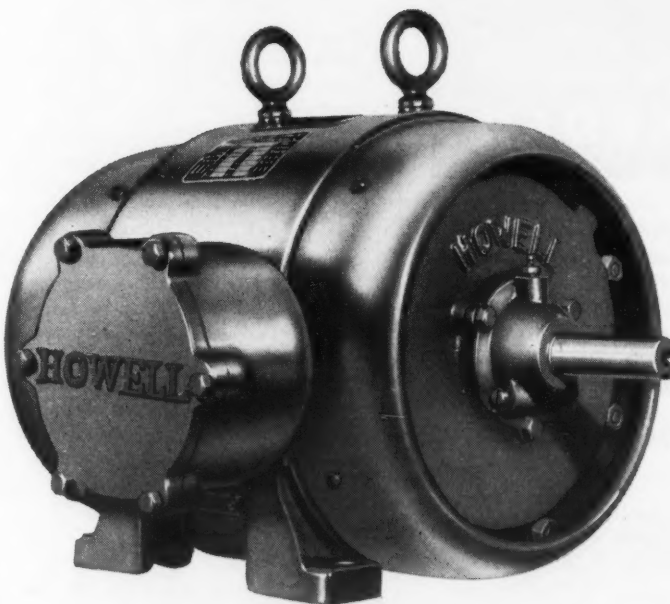
Four-page data sheet offers detailed description of direct transmittancy spectrophotometer. Information covers use, operation, and salient features of instrument. Discussion tells how unit incorporates memory standards to provide direct transmittancy recording of infrared absorption spectra. Illustrations of the equipment, typical chart records, and schematic diagram of the optical system are included. Data Sheet 10.16-13 is issued by Brown Instruments Division, Minneapolis-Honeywell Regulator Company, Dept. CP, Wayne and Windrim Ave., Philadelphia 44, Pa. When inquiring specify CP 3122 on handy form, pgs. 2-3.)

JUNE, 1952



Glycol Plant, Wyandotte Chemicals Corp.

Howell Motors help maintain volume chemical production



Howell Explosion-proof Motor for hazardous locations

The electric motors used in the preparation and handling of chemical products must meet two vital requirements — they must fit the job exactly, and must stand up under rigorous operating conditions.

Howell Motors are used throughout the chemical industry, because in the Howell line there is a motor to fit the requirements of every job. And Howell's careful attention to the details of design and manufacture assure uninterrupted production with minimum maintenance.

Howell Motors are industrial motors, built especially to handle tough motor jobs!

Take your electric motor problems to Howell — call the Howell representative in your city today.



HOWELL MOTORS

HOWELL ELECTRIC MOTORS CO., HOWELL, MICHIGAN
Precision-built industrial motors since 1915

When inquiring check CP 3123 on handy form, pgs. 2-3

CONTROLLED VOLUME PUMPING

OF "HARD-
TO-HANDLE"
CHEMICALS

...AND NO
STUFFING
BOX



Lapp
Auto-Pneumatic
PULSAFEEDER

Concentrated sulphuric acid, sodium sulphite, filter aid slurries, liquid caustic, any water-treating chemical . . . hold no fears for the Lapp Pulsafeeder. It's the positive-displacement metering pump with the hydraulically-balanced diaphragm—no stuffing box or running seal. Pumps against pressures up to 2,000 lbs., at constant pumping speed—variable flow results from variation only in piston stroke length, controlled by instrument air pressure responding to flow-orifice meter, flow-positive meter, pH control, flow variable-pH variable in combination, or other control instruments.

NEW BULLETIN AVAILABLE. Write for Bulletin 300, just issued. 24 pages of description, specifications, typical applications, flow charts. Lapp Insulator Co., Inc., Process Equipment Division, 560 Maple Street, Le Roy, N. Y.

When inquiring check CP 3124 on handy form, pgs. 2-3

FOR THE LABORATORY

**Billionths of an amp
can be detected
with meter . . .**

calibrated scales run from 0.3 microamp to 0.3 micro-microamp

Uses: For measurement and recording of very small currents. Typical applications include phototube and photomultiplier tube work, ion chambers, mass spectrometers, insulation studies, polarization studies, and similar work.

Features: Full scale readings of the meter cover the range from 0.3 microampere to 0.3 micro-microampere. Sensitivity is so great that currents as low as 10^{-15} amp (billionths of an ampere) can be detected.

Description: Model V Micro-Microammeter is a sensitive and stable DC instrument. Zero drift is typically less than 0.0005 volt in a 24-hour period, the reproducibility



Employs a hermetically sealed vibrating reed as capacity modulator

of $\pm 1\%$ is unaffected by ambient temperature or line voltage variations. Currents as low as 3×10^{-15} can be reliably detected.

Heart of the unit is a hermetically sealed vibrating reed. This plug-in component is used as a capacity modulator.

Terminals on the instrument chassis are provided for current input; for regulated polarizing voltage (to ion chambers, etc); for connection to a 50 mv potentiometer recorder; for connection to an oscilloscope; and for 120 cps amplifier output. A gasketed, dust-tight case encloses the chassis for panel or relay track mounting, and an attractive cabinet is available for bench use.

(Developed by Beckman Instruments, Inc., Dept. CP, South Pasadena 5, Calif. . . . or for more information check CP 3125 on handy form, pages 2 and 3.)

Data Sheets on pages 184, 186, 188 and 190, of this issue are designed to provide quick information.

IN WIRE-MESH PRODUCTS

LET **JELLIFF** DO IT!

For 70 years we've been weaving Wire Mesh. And a good part of that time we have also been making things of Wire Mesh for people who find it is cheaper, easier and generally more satisfactory to "let Jelliff do it."

From big Dipping Baskets to tiny precision filters — from fuel strainers to what-is-it gadgets — JELLIFF's Custom Production Department turns out fabricated Wire-Mesh products at speed, price and precision that mean lower costs and a stronger competitive position for our many customers.

If you buy or make wire-mesh assemblies as components of your own products and have not yet had an estimate from Jelliff, write today for details. No obligation, even if you enclose a blueprint for us to figure on. Address Department 27.

THE C. O. **JELLIFF** MFG. CORP.
DIPPING BASKETS
LEXTROMESH
RESISTANCE WIRE
SOUTHPORT
WIRE PRODUCTS
WIRE CLOTH
STRAINERS • FILTERS
CONNECTICUT
SINCE 1850

When inquiring check CP 3126 on handy form, pgs. 2-3



SOLVE
that problem with
Custom Designed
CLEVELAND
strainers and filter screens!

Where long life and accuracy are important — specify "Cleveland". When you have a special strainer or filter problem — call on "Cleveland Wire".

We have the equipment, facilities and experience to better serve your needs for strainer and filter elements in small or large production runs. Custom made from all commercial metals.

Write for Bulletin No. 7

THE CLEVELAND WIRE CLOTH & MFG. CO.
3574 E. 79th STREET • CLEVELAND 5, OHIO

When inquiring check CP 3127 on handy form, pgs. 2-3

CHEMICAL PROCESSING

**Carbohydrate analyses easier
using stable anthrone
reagent solutions . . .**

solutions last 60 days at room temperature; standard calibration curve gives determination

Uses: Reagent for quantitative test of carbohydrate materials. With slight modification in application, it can be used for analysis of any mono-, di-, or polysaccharide which reacts positively with the reagent.

Features: This reagent is a stable form of anthrone. Plain anthrone used in these determinations to date had a life of merely a few days (even when refrigerated), and in addition, required assaying a standard carbohydrate solution with each group of unknown carbohydrate solutions.

With the stable reagent, it is possible to prepare and store the reagent solution at room temperature for about 60 days. A standard calibration curve is employed in the determination to simplify procedures.

Description: Carbothrone is the name applied to the reagent. Preparation of reagent necessitates dissolving one vial of Carbothrone in a liter of glacial acetic acid, then filtering this solution through a fritted glass funnel into a flask that is devoid of carbohydrates. Solution is stored in an amber, glass-stoppered bottle, allowing to stand for 24 hours before use. Each vial makes enough solution for 200 analyses.

Test procedure: Transfer 5 ml of aqueous carbohydrate solution into a 125 ml Erlenmeyer flask, add 5 ml of prepared reagent solution, mix well, and while swirling the flask add 15 ml of concentrated sulfuric acid. Allow the flask to stand for 5 minutes and then cool to room temperature in a water bath. Measure the color in a spectrophotometer at 625 μ against a blank containing 5 ml each of distilled water and Carbothrone reagent and 15 ml of concentrated sulfuric acid.

From a calibration curve, prepared with NBS dextrose sample or high purity carbohydrate similar to the unknown, calculate the per cent of the sought carbohydrate in the unknown.

(Product of Rymark Laboratories, Dept. CP, 1539 South Sixth Street, Terre Haute, Ind. . . or for more information check CP 3128 on handy form, pages 2 and 3.)

**Working scope below 60 microns
for micro-particle classifier**

Eight-page bulletin outlines features, uses, and operation of centrifugal particle classifier. Instrument determines the sizes of particles in the range below 60 microns.

According to bulletin, classifier is capable of completing an eight fraction analysis in two hours. Instrument is intended for all industries utilizing or producing fine materials. Micro-particle classifier may also be used to determine separating efficiency of air cleaners.

Instrument is combination air centrifuge-elutriator, and has overall height of 19". Rotor assembly is driven by 1 hp axial air gap, 220 v, 3 phase motor. Rotor and motor are enclosed in cast aluminum housing. Fourteen photo-micrographs are presented which show penicillin fractions and complete classification of fire clay. "Micro Particles Classified Centrifugally" is issued by Harry W. Dietert Company, Dept. CP, 9330 Roselawn Ave., Detroit 4, Mich. When inquiring specify CP 3129 on handy form, pages 2 and 3.



Who's Kidding Who?

YOU'RE kidding YOURSELF if you think every safety valve is equally safe.

We know of one case where inspection showed that 27 out of 36 safety valves were stuck tight—would not have operated at pressures far above the set point—yet the user of those valves *thought* he had protection. He *could* have been stuck right along with those 27 valves.

If you want 100 per cent safety—and you'd hardly want less—there's one sure way to get it—specify BalanSeal or FarriSeal Safety Valves.

Why?

Because they can't stick, plug or corrode. Critical working parts are permanently iso-

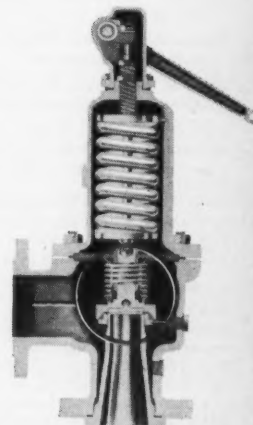
lated from any contact whatever with the lading.

Because they're unaffected by back pressures in the discharge manifold due to its own operation or to the opening of other valves in the line.

Because these features make it possible for you to use smaller discharge piping, an economy which often amounts to substantially more than the cost of the valves.

You'll be interested in the engineering of BalanSeal and FarriSeal Valves—design which is rapidly gaining acceptance in hundreds of successful installations.

Ask for our "8-Minute Brief."



**Your Safety's REAL
With FarriSeal**

Farri's ENGINEERING CORP.
406 COMMERCIAL AVE., PALISADES PARK, N. J.

AFFILIATES

Farri Stacon Corp. Temperature Regulators • Farri Flexible Valve Corp. Pinch Type • Farri Hydrotorque Corp. Remote Controls • Farri Hydroseal Corp. Elastic Piston Seals

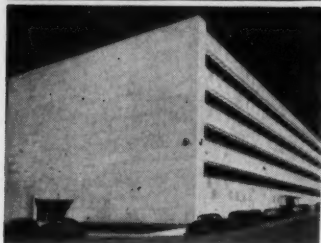
When inquiring check CP 3130 on handy form, pgs. 2-3



Coated Abrasives
Division

NOW SERVED
by

DAY DUST CONTROL



3M Office Building

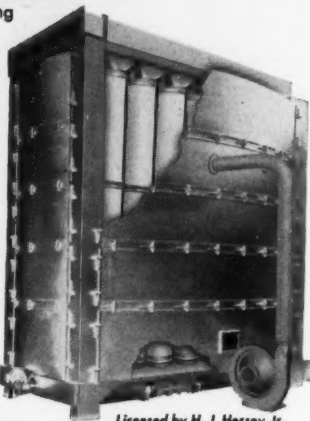
"Meets our rigid
requirements . . .

Keeps our plant
clean . . .

Keeps our maintenance costs low."

These are typical statements coming from the Coated Abrasives Division of Minnesota Mining and Manufacturing Co., St. Paul, since the installation of DAY Type "AC" Dust Filters.

Used for the recovery of abrasive materials, the DAY Filters are reclaiming abrasive dusts with better than a 99.998% efficiency. This high filtering efficiency is possible because the principle of operation in a DAY Filter permits the use of a high grade filtering felt. In addition, the other rigid dust control requirements of the 3M Company are being met.



Licensed by H. J. Hersey Jr.

ADVANTAGES OF DAY "AC" FILTERS

Continuous-Automatic Operation . . . reverse air jet rings move slowly up and down the filtering tubes, cleaning continuously.

Constant Air Volume . . . assured by back pressures leveling off after starting.

Higher Air-To-Cloth Ratio . . . 10, 15, or even 20 to 1 ratios with uniform back pressures.

Smaller Units, Less Floor Area Required . . . with no sectional shutdowns necessary for cloth cleaning, less filter is required for equal volumes of air.

Separated Dust Streams . . . several different product streams may be handled simultaneously without mixing.

EASY PLANT HOUSEKEEPING: The 3M Company also reports that these advantages make plant housekeeping easy and result in a clean plant—an aid to employee morale, high production and low plant maintenance costs.

71 YEARS' EXPERIENCE IN INDUSTRIAL DUST CONTROL: The DAY Company is proud to offer skilled engineering and service gained through 71 years' experience in the engineering, manufacture and installation of dust control systems for industry. If you have a dust problem, DAY can provide an effective and economical solution. DAY engineers are at your service for plant studies and cost estimates. CALL OR WRITE-TO-DAY FOR MORE INFORMATION.



The DAY Company

SINCE 1881

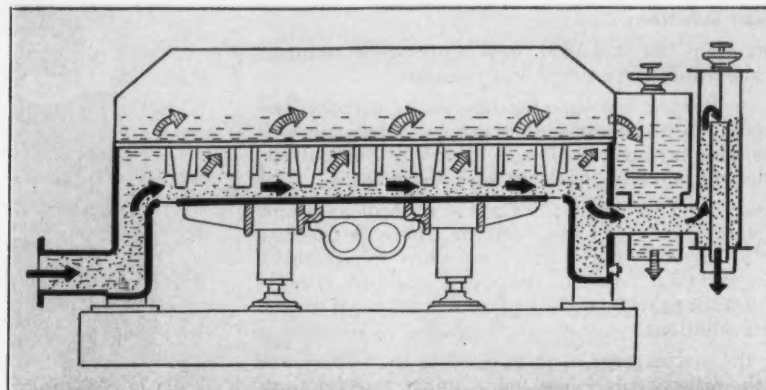
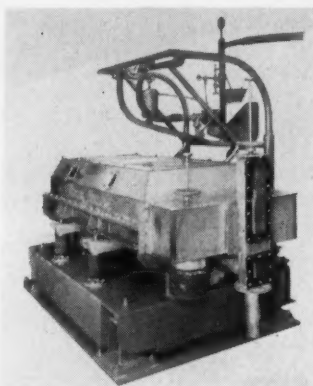
852 3rd Avenue, N.E., Minneapolis 13, Minnesota
IN CANADA . . . Box 70, Fort William, Ontario
Branch Plants in Ft. Worth, Buffalo and Welland, Ontario

When inquiring check CP 3131 on handy form, pgs. 2-3

Page 114

Processing Equipment

Oliver-Ahlfors "Upflow" Vibrating Pulp Screen



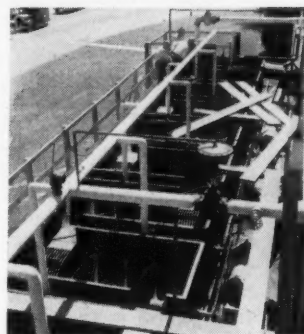
High screening capacities result from upward flow of pulp plus vibration. Note how rejects (black arrows) fall away from screening surface so that clogging is avoided. Reject discharge (at far right of drawing) is designed so that discharge rate can be controlled

Better Paper Pulp Screening, Sugar Extraction Promised by Two Developments

Vibrating screen uses upflow
principle to minimize clogging;
diffuser extracts sugar from
cossettes continuously

PURSUING a policy of diversification, Oliver United Filters Inc. has come up with a couple of developments that show particular promise. One is the Oliver-Ahlfors "Upflow" vibrating pulp screen, intended principally for primary and secondary screening of all types of bleached and unbleached paper pulps. Second development, the Oliver-Morton diffuser, is a system for continuous extraction of sugar from sugar beet cossettes.

The vibrating pulp screen boasts several advantages because it operates with an upward instead of downward flow of pulp. According to Oliver 1) high screening capacities are common because the slotted plate screen doesn't clog, 2) knots, dirt, and other rejects drop down and away from the screening surface rather than onto it, 3) vibrations are fast yet gentle, and easily adjusted, 4) rejects are continuously discharged at a controllable rate, and 5) screen can operate at much higher pulp



Oliver-Morton Sugar Beet Cossette Diffuser

Photograph of diffuser
with cell covers
removed

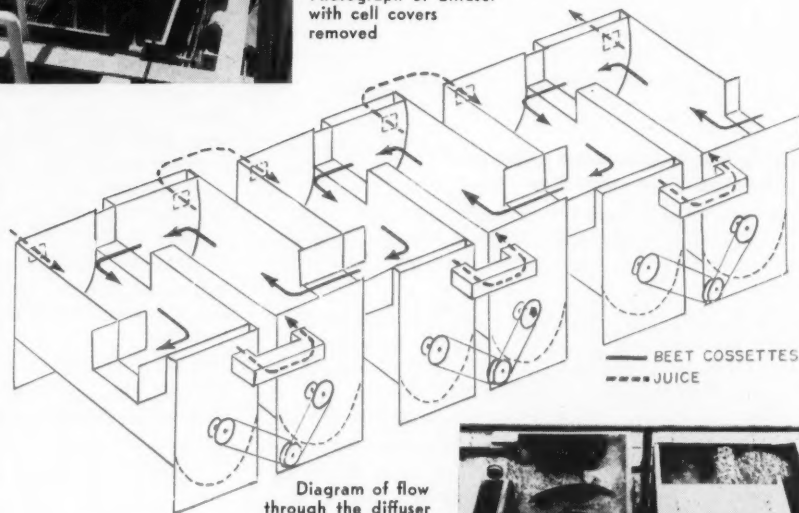
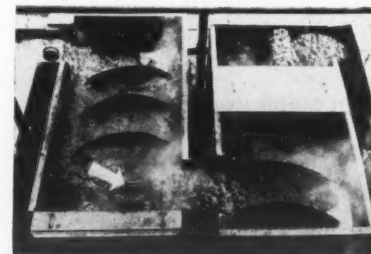


Diagram of flow
through the diffuser

This view shows two cells in operation. Although scrolls that move cossettes through length of cells are visible, the fingers that lift the cossettes from one cell to another cannot be seen too clearly. Arrow points to what little can be seen of one set of fingers



CHEMICAL PROCESSING

consistencies with less power than normal flat screens. The Oliver-Morton continuous diffuser may well eventually replace most conventional batteries of batch type beet cossette diffusers. It consists of a battery of multiple cells, each of which is a U-shape tank fitted with a scroll along about 90% of its length. At the end of the scroll, but mounted on the same shaft, are four sets of fingers for lifting and transferring the cossettes from the cell to the next one.

While the cossettes are following a zig-zag path from once cell to another, the juice is flowing counter-current to them through the battery, *but concurrent with them* in each cell when considering one cell as a unit. The discharge end of each cell is a perforated plate to which is attached a juice box. Each cell, starting with the head end, is a few inches higher than the preceding cell. This difference in cell height allows the juice to flow by gravity.

The design features simplicity, accessibility, and flexibility in operation and installation. Each cell has only one slowly rotating element — the scroll. Cell covers are easily removed when it is desired to inspect the cell interiors or parts of the mechanism. Variable-speed drives allow latitude in operating conditions. The cells can be installed in one or more lines, or in one or more tiers, and additional cells may be added readily to an existing installation.

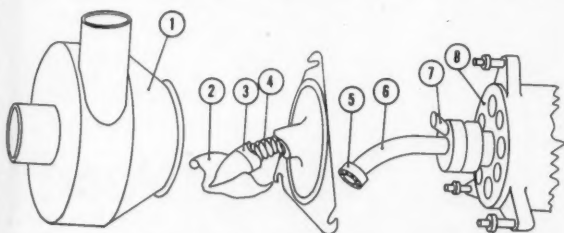
(Oliver United Filters Inc., Dept. CP, 2900 Glascock St., Oakland 1, Calif. . . . or for more information check CP 3132 on handy form, pages 2 and 3.)

**Efficiency of pump doesn't drop
as vapor load goes up to 20%
of liquid pumped . . .**

liquid won't leak or become contaminated; no packing of any kind is employed

Although essentially a centrifugal pump, the Vibro-Pump has certain characteristics that put it into a class by itself. For example, liquids containing up to 20% vapor can be pumped without vapor-locking — in fact, without *any* loss of efficiency. In addition, sand, slurry, mud, and other such materials can be handled with ease.

Inventor William Gemeinhardt reports that there is no chance of leakage or contamination of the liquid

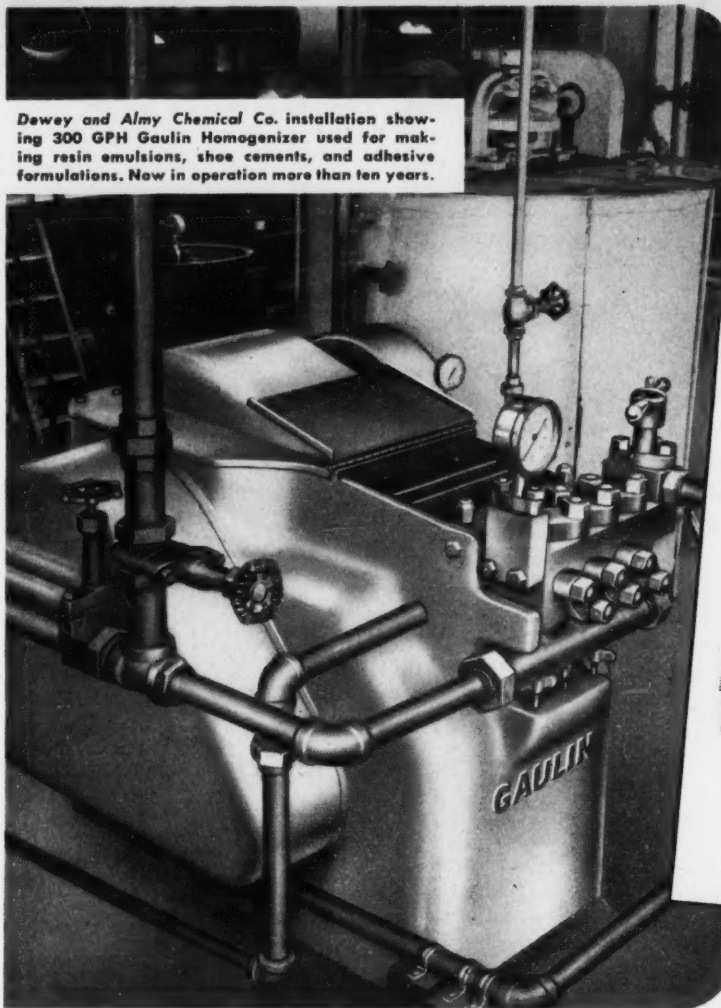


The Vibro-Pump breaks down into these three parts. Numbered parts are as follows: 1) housing, 2) impeller, 3) flexible tubing, 4) reinforcing spring, 5) sealed bearing, 6) bent shaft, 7) counterbalance, and 8) motor

being pumped. No packing of any type is used, and no lubrication is needed; the single ball bearing of the unit is of the permanently lubricated type.

Pump is comprised of only three main parts, as in drawing: the slightly curved shaft extending from motor coupling; impeller housing and vane (assembled as one unit); and the pump housing. As the shaft rotates it imparts an orbital motion to the vane, which scoops liquid from the pump center and pushes it to the housing perimeter. Surprisingly high pressures

(Continued on next page)



Dewey and Almy Chemical Co. installation showing 300 GPH Gaulin Homogenizer used for making resin emulsions, shoe cements, and adhesive formulations. Now in operation more than ten years.

Chemical Processing ?

Here's how
GAULIN
Homogenizers
improve it

FATS & OILS — A Gaulin stops separation. Controls viscosity. Produces a smoother, perfectly uniform product.

PIGMENT DISPERSIONS — Gives a finer, more uniform suspension with less temperature rise.

LATEX & RESINS — Provides more uniform monomer emulsions. Better polymerization control.

WIRE DRAWING COMPOUNDS — Improves lubricating value and stability. Increases service life.

COSMETIC EMULSIONS — Improves texture. Boosts shelf-life. Locks perfume in against evaporation.

And in each case, Gaulin Homogenizers prove a **FASTER, MORE ECONOMICAL** way to make uniform and stable emulsions and dispersions.

Discover what a Gaulin Homogenizer can do for your product. Our complete testing facilities and experience in practically every industry are yours without charge or obligation. Write today.



Manton Gaulin
MANUFACTURING COMPANY, INC.

55 GARDEN STREET, EVERETT 49, MASS.

World's largest manufacturer of Homogenizers,
Triplex Stainless-Steel High Pressure Pumps,
and Colloid Mills



**GAULIN PILOT PLANT
HOMOGENIZER**

Ideal for experimental purposes, operation or process requiring up to 25 gallons per hour capacity. Handles quantities as small as one pint. Available on low rental basis.

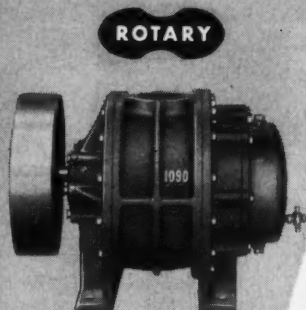


**GAULIN TWO-STAGE
COLLOID MILL**

Stator is jacketed for cooling or heating. Gap setting adjustable for .001" to .045". Only 45 seconds clean-up required in changing colors. 12" head room. 12" x 17" floor area.

When inquiring check CP 3133 on handy form, pgs. 2-3

For 10 CFM or 100,000 CFM ...compare blower values



Typical low-capacity R-C Rotary Positive Blower. Sizes range from 5 cfm to 50,000 cfm, permitting selection closely matched to needs.

- ☐ Choice of Rotary or Centrifugal
- ☐ Capacity matched to the job
- ☐ Easy accessibility
- ☐ Ruggedness
- ☐ Ease of installation
- ☐ Ability to handle overloads
- ☐ Long-time durability
- ☐ Freedom from breakdowns
- ☐ Low maintenance costs
- ☐ Engineering assistance
- ☐ Proved reputation of maker
- ☐ Customer satisfaction

No need to take chances when buying blowers, exhausters or gas pumps. Just put this "detector test" to work on your specific problem and you'll arrive at the most satisfactory answer.

For instance, if you're debating between Rotary Positives and Centrifugals, remember that only Roots-Connersville builds both—the exclusive *dual-ability line* that permits unbiased recommendations. Their wide range of capacities supplies sizes and types that are quite likely to be most closely matched to your needs.

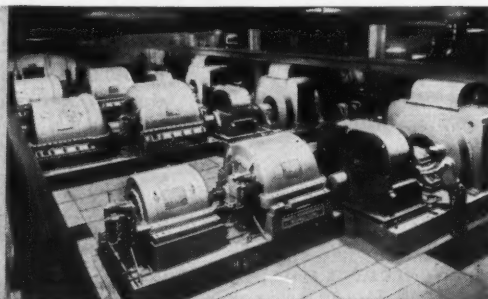
For economy of operation, reliability and low maintenance, we refer you to a list of users that dates back almost a century. If you'll rate your possible choices on a performance basis, you'll usually find R-C equipment "tops" on the list.

To help you make the most profitable, practical decision, our experience is at your service.

ROOTS-CONNERSVILLE BLOWER CORPORATION
525 Richland Avenue, Connersville, Indiana



Six R-C Multi-Stage Centrifugal Blowers equipped with automatic regulators to provide extremely wide range of operation at various pressures and capacities.



ROOTS-CONNERSVILLE BLOWER

A DIVISION OF DRESSER INDUSTRIES, INC.



When inquiring check CP 3134 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

(Continued from preceding page)

and suctions have been attained. A small water pump with a 1½" diam housing and a 1" impeller orbit, powered by a 1/25 hp motor at 4000 rpm, develops a head of 35'. A 3" diam pump powered by a 1/6 hp motor at 3600 rpm develops suction of 27" mercury. The pump is not in manufacture as yet, but negotiations are under way to produce one type of small pump for a specific use. Manufacturers to make and distribute pumps in various sizes for use in a number of applications are being sought.

(Further information may be obtained through Bennett Productions, Dept. CP, 1507 Walnut St., Philadelphia 2, Pennsylvania.)

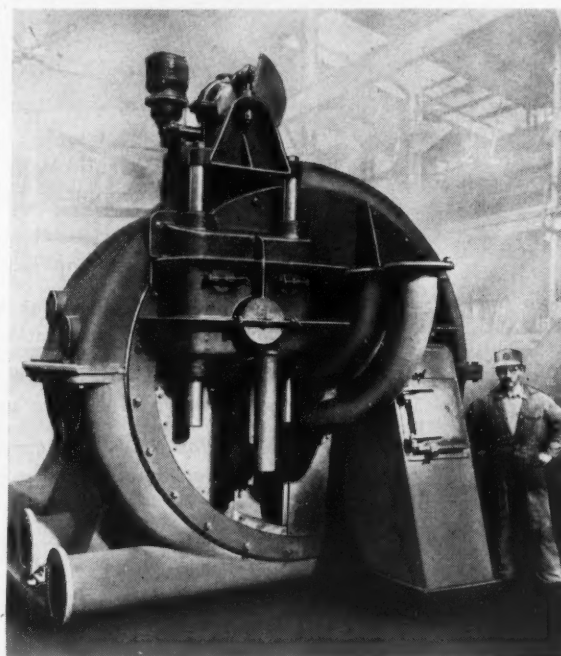
Centrifugal force 1500 times that of gravity separates solids from liquids...

construction of centrifugal assures lack of vibration; product is dryer, capacity higher

Uses: Separation of solids from liquids, or separation of two liquids with different specific gravities. Machine can be applied as a centrifuge, separator, or classifier, according to reports.

Features: Main bearing is located at center of gravity of the rotating mass. This construction brings about a high critical speed, resulting in freedom from vibration. It is said that filter bed formation is improved, leading to a dryer product, shorter operating cycle, and higher production.

Description: The Reineveld centrifugal machines are made by Reineveld Engineering Works, Delft, Holland. Standard machines range in drum size from 36 to 80"

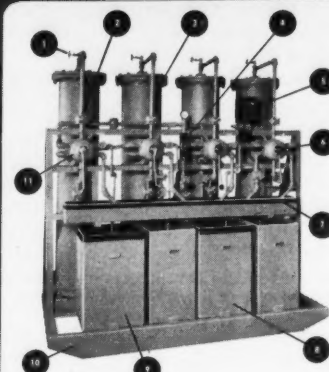


Centrifugal develops 1500 times the force of gravity

diam and operate at centrifugal forces 1500 times the force of gravity. The American version of the machine conforms to American standards but retains all the time-proven features of the European types.

The improved filter bed and higher centrifugal force are expected to make the machine attractive for hard, slow-

BARNSTEAD WATER DEMINERALIZERS are BUILT BETTER



1. Convenient Air Vent and Sampling Valves
2. Uscolite Piping with Flanged Joints
3. Steel Columns Lined with Sheet Rubber. Linings 1/8" thick, Vulcanized in Place. (Not Sprayed or Coated)
4. Flow Rate Indicator
5. Purity Indicating Meter Instrument
6. Multiport Valves Lined with Baked Resin. No Metallic Contact
7. Water Flow May Be Observed in Trough During Regeneration
8. Self-contained Regenerant Tanks. An Individual Tank for Each Column. Bolted in Place. Easy to Remove
9. Acid Tanks Lined with 10 Coats of Acid-proof Duroprene
10. Entire "Packaged" Unit on Steel Skid. Easy to Install
11. Stainless Steel Regenerant Solution Eductors

Barnstead Water Demineralizers are engineered to give you long, trouble-free service... they are scientifically designed to produce Pure Water — and water of standardized, controlled quality for as low as 5c per 1000 gallons.

FIRST IN PURE WATER SINCE 1878

Barnstead
STILL & STERILIZER CO.

BARNSTEAD STILL & STERILIZER CO.
66 Lanesville Terrace, Forest Hills,
Boston 31, Mass.

Gentlemen: Please, send me the complete Pure Water story on Barnstead Demineralizers.

Name
Firm
Address
City State.....

When inquiring check CP 3135 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

draining crystal separations, or where organic impurities, clays, and other materials impede filtering rate.

A modification of the standard machine is totally enclosed and vapor-tight so that flammable materials can be handled safely, with controlled atmospheres if desired.

(Distributed in the United States and Canada by Heyl & Patterson, Inc., Dept. CP, 55 Water St., Pittsburgh 22, Pa. . . . or for more information check CP 3136 on handy form, pages 2 and 3.)

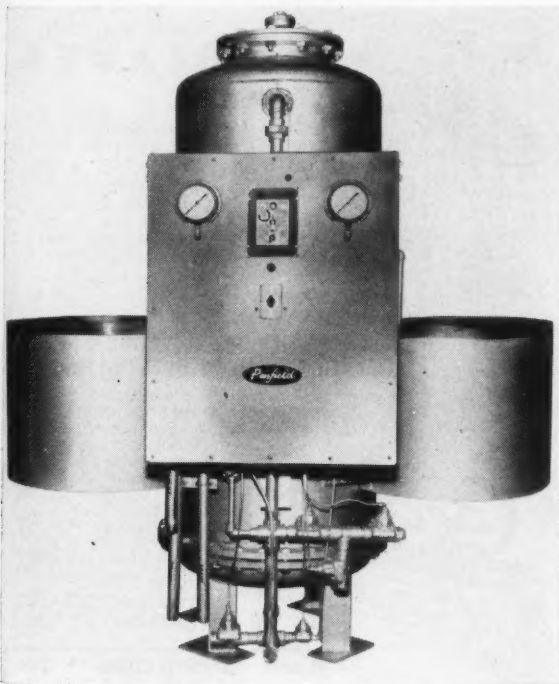
Even the regeneration is automatic with monobed demineralizer . . .

fully automatic unit assures effluent quality, avoids errors possible with manual control

Uses: Monobed demineralizer is for flow rates ranging from a few gallons to 5000 or more gallons per hour. Mineral content of effluent is reported as virtually zero (resistances as high as 20 million ohms per centimeter).

Features: All operating functions, including regeneration cycle, are automatically controlled. There are no valves to operate and no supervision is required. Costly and time-consuming errors that occur in the manual operation of regeneration cycles are avoided, desired high purity of effluent is a certainty, and operating costs are minimized.

Description: Whenever effluent's conductivity falls below standard, the treated water is automatically discharged, and lights or other warning devices signal the need for regeneration. Operator then turns a single switch

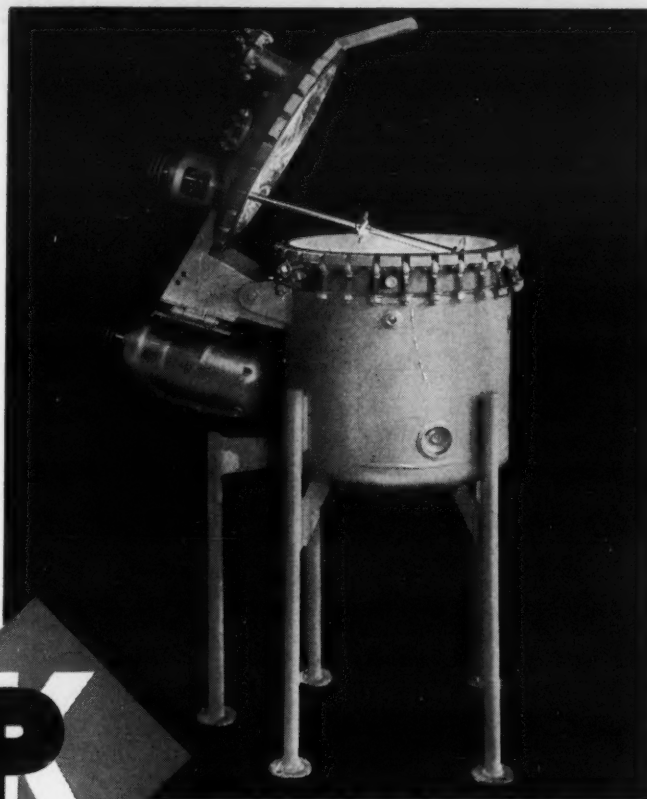


Monobed demineralizer's operation is completely automatic

to put the unit through the regeneration cycle automatically, including rinsing and cutting in the effluent when desired resistivity is reached. During this automatic regeneration cycle, the acid and caustic regeneration tanks are automatically refilled with water.

(Announced by Penfield Manufacturing Co., Inc., Dept. CP, 19 High School Ave., Meriden, Conn. . . . or for more information check CP 3137 on handy form, pgs. 2-3.)

JUNE, 1952



COOKED UP THIS COOKER . . . WHAT CAN WE COOK UP FOR YOU?



p-k will design and make any tailored or standard pressure cooker or any similar piece of process equipment to your exact specifications.

The pressure cooker shown is typical of **p-k** designing and manufacturing ability to meet specific requirements for specific processing operations. It is a stainless steel jacketed unit, with No. 4 polish inside, designed for 50 lb. pressure on both sides to meet ASME standards. The cover with an integral double-propeller agitator, is counter-balanced for easy cleaning and loading.

No matter whether your present needs are for a kettle, agitator, or any type of pressure vessel, **p-k** will work out an answer for you. Write **p-k** today—for specific design assistance or for more complete information.

Mixers • Coolers • Kettles • Agitators
Nitrators • Reboilers • Autoclaves
Condensers • Evaporators • Sulfonators
Brine Heaters • Brine Coolers
Freon Coolers • Soap Crutchers
Ribbon Blenders • Fuel Oil Heaters
Vapor Condensers • Lube Oil Coolers • Lube Oil
Heaters • Reaction Vessels • Instantaneous Heaters
Quenching Oil Coolers • Storage Heaters
Refrigerant Condensers • Twin Shell Blenders*

*Patented



the Patterson-Kelley Co., Inc.
360 Lackawanna Ave. East Stroudsburg, Penna.

1701

101 Park Avenue, New York 17 • Railway Exchange Building, Chicago 4 • 1700 Walnut Street, Philadelphia 3 • 96-A Huntington Avenue, Boston 16 • and other principal cities

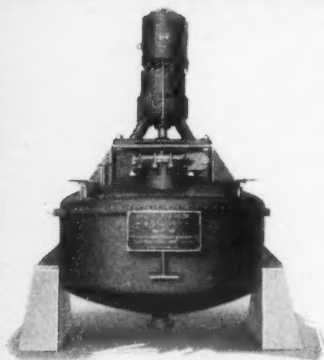
When inquiring check CP 3138 on handy form, pgs. 2-3

Rapid Dissolving

— ONE-TENTH
TO ONE-THIRD
THE USUAL CYCLE!



Patterson Dissolvers



Patterson Dissolvers feature rapid dissolving of difficult materials, including natural and synthetic resins, nitro-cellulose, vinylite, rubber, cotton for cutting, film, cellulose acetate. Efficient dispersion of pigments in cotton and synthetic solutions are among the many other uses of these versatile machines. We'll be happy to quote on your specific needs.

Richard L. Cameron

WRITE

for the detailed information you need, and let us arrange a consultation.

The Patterson Foundry and Machine Company East Liverpool, Ohio, U. S. A.

NEW YORK, BOSTON, BALTIMORE, PHILADELPHIA, PITTSBURGH, DETROIT, CINCINNATI, CHICAGO, ST. LOUIS, HOUSTON, DENVER, LOS ANGELES, SAN FRANCISCO, SEATTLE
The Patterson Foundry and Machine Company, (Canada) Limited
Toronto, Canada
MONTREAL

When inquiring check CP 3139 on handy form, pgs. 2-3

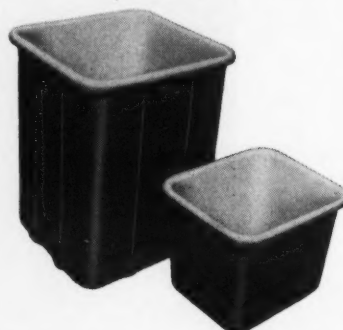
PROCESSING EQUIPMENT

Tank is easily cleaned and lightweight . . .

molded in 1 piece, Fiberglass tank resists corrosion

Primary features of Fiberglass tanks are their lightness of weight, easy cleaning, and the one-piece corrosion resistant molding. These features are said to decrease work loads, prevent smudging, and qualify tank for variety of applications.

Laminex Tanks can be equipped with dam overflow for cold or hot water rinses. Capacities range from 55 to



Lightweight tanks have capacities from 55 to 550 gal

550 gallons. Smallest standard model is tub with 17-1/2" diameter x 13-1/2" bottom x 14-3/4" height. All tanks of 300 gallon capacity or over have extra ply bottom.

For further description of tank, reader is referred to Material Handling section, p. 96, March issue of CHEMICAL PROCESSING, in which similar Fiberglass trucks were announced.

(Product of The Laminex Corp., Dept. CP, 994 Jefferson St., Fall River, Mass. . . or for more information check CP 3140 on handy form, pages 2 and 3.)

Specifications and Illustrations of plastics molding machines

Sixteen-page catalog illustrates complete line of all-hydraulic plastics injection molding machines. Units are available in 9, 16, 32, and 60 oz capacities.

Full specifications are given for each model. Photographs show typical parts which may be molded with various machines. Installation stories are also included in two-color bulletin to confirm equipment's value to processors.

Bul 5204 is issued by The Hydraulic Press Mfg. Co., Dept. CP, Mount Gilead, Ohio. When inquiring specify CP 3141 on handy form, pages 2 and 3.

NOW! An ABRASIVE BLADE

VIRTUALLY UNBREAKABLE!

FOR THOSE
"TOUGH"
CUTTING JOBS



Clipper
SALES RIGHT THRU
"CBR"
(BREAK-RESISTANT)
BLADES



BEND IT



STEP ON IT



DROP IT



TWIST IT

for . . .



MASONRY
SAWS



HAND POWER
SAWS



FLEXIBLE SHAFT
SAWS

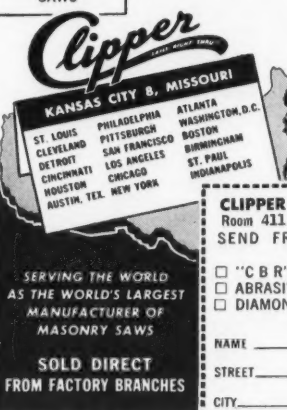
BEND—DROP—or TWIST in the cut . . . they're Virtually Unbreakable! Yes, Clipper "CBR" Blades are STRONG and SAFE and even more surprising the blade life is 50% to 100% longer than regular blades. It is not recommended for hard vitreous materials but rather the softer ranges of masonry. The most intricate cutting or grooving is now possible on Hand-Power Saws or Masonry Saws. Write today for prices and recommendations on this newest Dry Abrasive blade. Available in all diameters, arbor shapes and sizes.

DIAMOND AND ABRASIVE BLADES for Any MASONRY or CONCRETE CUTTING

There's a Clipper Blade to cut your Brick, Glazed Tile, Fire Brick, Concrete block and Floors, Natural Stone, Glass and Porcelain. Available in sizes from 6" to 30". Choose Genuine Clipper for the FASTEST — CHEAPEST and LONGEST LASTING masonry cutting.



FREE
ILLUSTRATED
LITERATURE
AND PRICES



CLIPPER MANUFACTURING CO.
Room 411, 2800 Warwick, Kansas City 8, Mo.
SEND FREE LITERATURE 92

AND PRICES ON:
☐ "CBR" BLADES ☐ MASONRY SAWS
☐ ABRASIVE BLADES ☐ CONCRETE SAWS
☐ DIAMOND BLADES ☐ CONVERTIBLE SAWS

NAME _____
STREET _____
CITY _____ STATE _____

SOLD DIRECT
FROM FACTORY BRANCHES

When inquiring check CP 3142 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

Filtering surface tripled for given space . . .

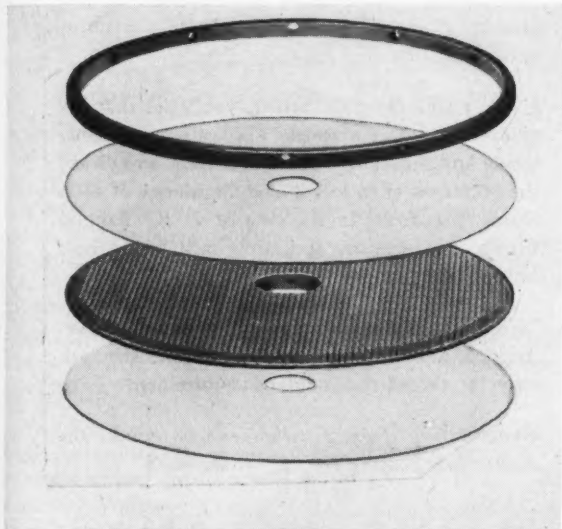
both sides of horizontal plates do a clarifying job on low-solid liquids

Uses: Specifically intended as a final polishing filter when processing edible oils, as a check filter for sugar refining, as a final trap and check filter for chemical processes of all types, and for gasoline and fuel oils. Since filter tank is air-tight, fume-tight, and leakproof, the filter can be safely used for explosive or flammable liquids, and for liquids with high evaporation rates.

Features: Horizontal plates of the filter are designed so that filtration takes place through top and bottom. These plates are so arranged in the filter tank that the net result is triple the filtering surface for a given space. As with manufacturer's standard horizontal plate filters, cleaning is simplified and speeded by putting plates in tank as a single cartridge that can be easily disassembled when cleaning on the floor.

Description: The Model VR Dual-Disc filter is made in sizes ranging from those with 4.5 sq ft of filtering area (flow rate 315 gph) to those with 2000 sq ft of filtering area (flow rate 140,000 gph). It can utilize filter aid or may be used without anything other than the filter media, depending on the nature of the solids to be removed. Readily interchangeable filter media, including paper and cloth of all kinds, may be used, as well as woven wire cloth.

The exploded view illustrates the simplicity of the Dual-Disc design. Structure of the disc itself provides sturdy



Here's how plate is put together. Paper (or other medium) rests firmly on supporting disc which is deep at the center and tapers toward the outer edge. Ring rests on top of filter paper, sealing it tight around the edge of the disc. Paper under disc is held in place by sealing ring of the disc below

support for any type of media to be used, yet the interior of the disc assures ample run-off space for filtrate so that flow will never be impeded. Sealing ring around outer edge of each plate makes a tight seal between media on both sides of the disc, thereby eliminating any possibility of by-passing. Centers of the discs are drawn up tight, further averting possibility of by-passing.

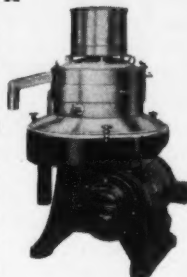
(Product of Sparkler Manufacturing Company, Dept. CP, Mundelein, Ill. . . . or for more information check CP 3143 on handy form, pages 2 and 3.)

JUNE, 1952

The Answer to Your Centrifugal Problems can be found in this Complete line of Sharples Continuous Centrifuges

NOZJECTOR

Solids are continuously discharged from the disc type bowl of this high efficiency centrifuge which is widely used for separation of two immiscible liquids containing solids, or for the concentration of solids in a liquid phase.



to

- SEPARATE TWO IMMISCIBLE LIQUIDS
- CLARIFY LIQUIDS
- REMOVE OR RECOVER SOLIDS FROM SLURRIES
- CONCENTRATE SOLIDS
- CLASSIFY SOLIDS BY PARTICLE SIZE
- DEHYDRATE OR RECOVER CRYSTALS

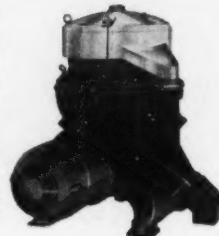
SUPER CENTRIFUGE

Highest centrifugal force commercially available (13,200 x G) is developed by this tubular bowl continuous centrifuge. Easy to clean, it can be used to separate immiscible liquids with small differences in specific gravity or to effectively clarify liquids.



DV-2 CENTRIFUGE

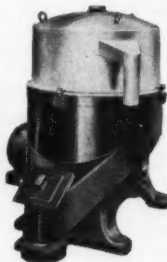
Solids ranging from firm to slimes and sludges are handled by this versatile centrifuge, with continuous solids discharge. Available as a clarifier to remove solids from liquids; or a separator, to separate two immiscible liquids in the presence of solids.



**You Can Depend
On Sharples—
unbiased recommendation
based on the most
efficient centrifuge
for your job.**

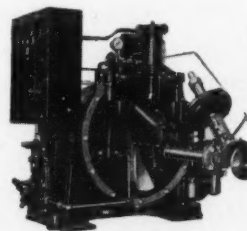
D-2 CENTRIFUGE

This disc type, continuous centrifuge utilizes the stratification principle which is most effective in concentrating a liquid or solid phase suspended in another liquid.



SUPER-D-HYDRATOR

An extremely flexible, completely automatic centrifuge for recovery and dehydration of crystals. Efficiently handles slurries with 15 to 60% solids. Each step of feed, rinsing and drying can be individually controlled.



SUPER-D-CANTER



High capacity centrifuge for removal of solids from liquids . . . clarification of liquids . . . classification of solids. Available in two bowl types to accommodate wide range of solids consistencies.



THE SHARPLES CORPORATION • 2300 WESTMORELAND STREET, PHILADELPHIA 40, PENNA.
NEW YORK • BOSTON • PITTSBURGH • CLEVELAND • DETROIT • CHICAGO • NEW ORLEANS • SEATTLE • LOS ANGELES • SAN FRANCISCO • HOUSTON

SHARPLES

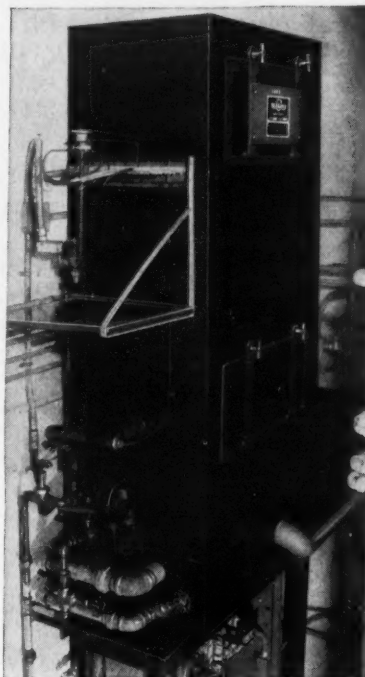
When inquiring check CP 3144 on handy form, pgs. 2-3

New "Controlled Humidity" Method Gives a Better Solution to Air Conditioning Problems

**"Hygrol" Absorbent Liquid
Dehumidifies Fresh Air
Without Refrigeration**

NIAGARA Air Conditioners or Dehumidifiers using "Hygrol" liquid absorbent give precise control of air temperature and humidity... at lower operating cost, with large savings in space and with smaller and less expensive equipment, in many applications.

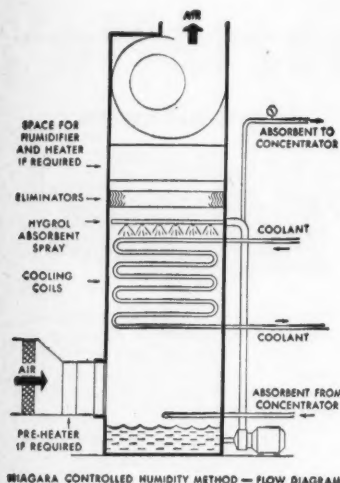
This method dehumidifies the air by passing it through a chamber in which "Hygrol" spray removes its moisture and produces a low dew point. The "Hygrol" solution resulting is continuously and automatically re-concentrated, providing always full capacity in



air conditioning and assuring always a constant dehumidifying capacity and a trustworthy, constant condition for your material, apparatus, process or room to be conditioned.

"Hygrol" is a liquid, not a salt solution; it stays pure and non-corrosive; it does not cause maintenance or operating troubles in food plants or in chemical processes.

Investigate this new Niagara Method for "comfort" air conditioning as well as to protect quality in hygroscopic material, or processes or instruments, or to prevent condensation damage to metals, parts or products.



Write for Specific Information

NIAGARA BLOWER COMPANY

Over 35 Years Service in Industrial Air Engineering

Dept. CP, 405 Lexington Ave.

New York 17, N. Y.

Experienced District Engineers in all Principal Cities of U.S. and Canada

When inquiring check CP 3145 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

**Makes, seals 6000 fph
of plastic welting
or gimp . . .**

machine can handle five sizes at the same time

Uses: Although being used primarily in making and sealing vinyl plastic welting or gimp; this unit can be employed equally well in manufacture of plastic belting and strapping and similar products for industrial use. Practical for long or short runs.

Features: Production rate is 5000 to 6000 fph, depending on design of the welting or gimp. Often one operator can service three machines at once; all he is needed for is inspecting and the easy matter of loading the reels. Machine eliminates waste and expensive rejects resulting from poor sewing.

Description: The Thermatron welting machine utilizes electronic heat sealing equipment. The complete machine simultaneously feeds five sizes of slit-rolled vinyl plastic onto five separate reels and rewinds the finished binding into tight rolls, ready to use or ship.

Change-over from one size to another is said to be accomplished quickly. Machine can be adjusted to hold inner cord tight or loose. It occupies roughly 12 by 4' of floor space.

(Development of Thermatron Division, Radio Receptor Company, Inc., Dept. CP, 251 W. 19th St., New York 11, N. Y. . . . or for more information check CP 3146 on handy form, pages 2 and 3.)

Lists features of valve for high vacuum service

Two-page bulletin itemizes 11 features of hand wheel disc valve for high vacuum service. Detailed description covers valve and its operating principle. Unit is available in sizes from 6 to 16". Handwheel eliminates levers with their potential danger to operator.

Special features include butterfly vane for low flow resistance, positive seal and connections, and compact design. Other highlights refer to easy installation and operation.

Pressure differential is controlled in both directions, and valve locks automatically in any selected position. Eight turns of handwheel completely close or open line. "Model 211 High Vacuum Disc Valve" is issued by F. J. Stokes Machine Company, Dept. CP, 5500 Tabor Rd., Philadelphia, Pa. When inquiring specify CP 3147 on handy form, pages 2 and 3.



Tons of "K" Fittings for hospital building

Many of the fittings have already been installed. Many more are stored in other bins. The photograph shows only a few of the tons of "K" cast-iron fittings delivered by a distributor to the plumbing contractor for a hospital building under construction.

If you examine a "K" fitting, you'll see that it's an excellent piece of work. The walls are smooth inside and out. The threads are sharp and clean; the entrances chamfered. The angularity of each fitting is correct. In the case of a "K" flanged fitting, the faces are accurately milled; the bolt holes exactly spaced.

"K" fittings are structurally uniform, close-grained, and free of defects. In tensile strength they far exceed the standard requirement.

Order fittings from distributors who handle the Kuhns line bearing the "K" trade-mark.



CAST-IRON FITTINGS
3000 SHAPES AND SIZES

THE KUHNS BROTHERS COMPANY

Dayton 1, Ohio
Established 1887

When inquiring check CP 3148 on handy form, pgs. 2-3

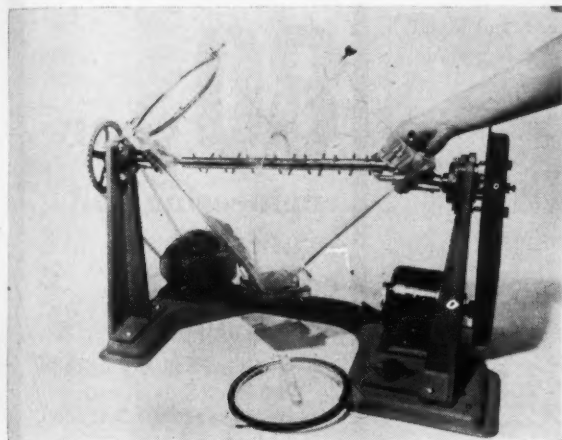
CHEMICAL PROCESSING

Rotating lug-studded metal bar improves the mixing action in twin-shell blender . . .

easily replaced "intensifier bar" is now on all units up to 60 cubic foot size

A rotating "intensifier bar" is now a part of all Twin-Shell blenders up to 60 cu ft in size. This lug-studded bar improves mixing action by breaking up lumps, dispersing materials which tend to agglomerate, and it speeds mixing of small amounts of liquids into bulk solids. Rotation of the blender continuously supplies fresh material to the impact and shearing action of the lugs, peripheral speed of which is about 2500 fpm.

The metal bar is belt-driven by a separate motor. Power requirements are small. Bar is easily removed for cleaning



"Intensifier bar" is easily slipped into blender

by pushing it toward the spring-loaded end and sliding it from its sockets (see illustration).

The Twin-Shell blenders themselves are available in either acrylic plastic or steel construction. Blending action is a combined tumbling or rolling with simultaneous transverse movement within the entire material mass. In addition, a folding action is caused by the combining and dividing of the mass as the blender rotates.

(Manufactured by Patterson-Kelley Company, Dept. CP, 446 Warren St., East Stroudsburg, Pa. . . or for more information check CP 3149 on handy form, pages 2 & 3.)

Guarantees thermal capacity in prefabricated cooling tower

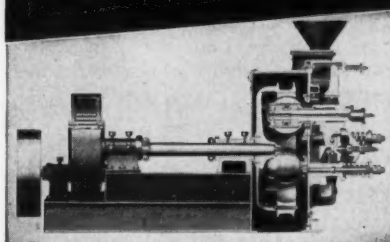
Four-page bulletin describes design features of three types of prefabricated cooling towers. Models are framed from Redwood lumber, and two units have steel basins.

Two-color bulletin has a selection guide which points out four-step method of selecting proper cooling tower. Dimensional specifications and tables of capacity are included for various tower models. Pictures in bulletin show the three types of towers assembled as well as an "as received" shipment.

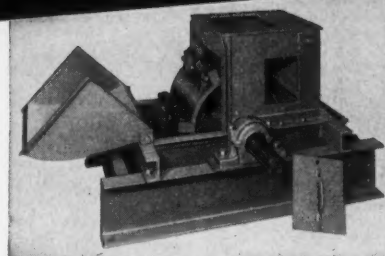
Units are intended to meet water cooling problems encountered in air conditioning, refrigeration, steam condensers, etc. Thermal capacity is guaranteed for life of tower, and assembly instructions are included with each shipment. Bul 5.9.083 is issued by Equipment Division, J. F. Pritchard & Co., Dept. CP, 908 Grand Ave., Kansas City 6, Mo. When inquiring specify CP 3150 on handy form, pages 2 and 3.

JUNE, 1952

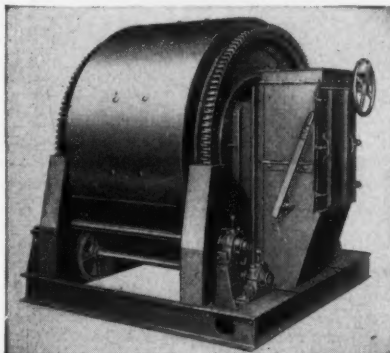
Step-up Production Lower Preparation Costs with STURTEVANT EQUIPMENT



RING ROLL MILL — for medium and fine reduction of hard or soft materials (10 to 200 mesh). Open-door accessibility for easy cleaning. Available in many sizes and capacities.



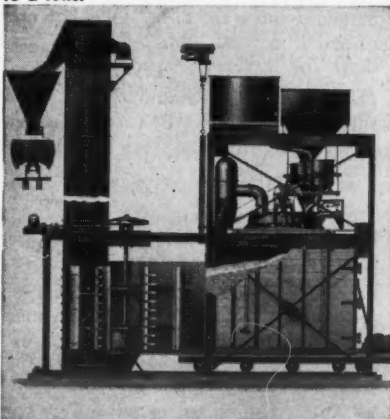
TAILINGS ROTARY PULVERIZER — increases output of fertilizer tailings . . . will not clog . . . leaves no daily accumulation of unground pellets. Capacities up to 25 tons per hour.



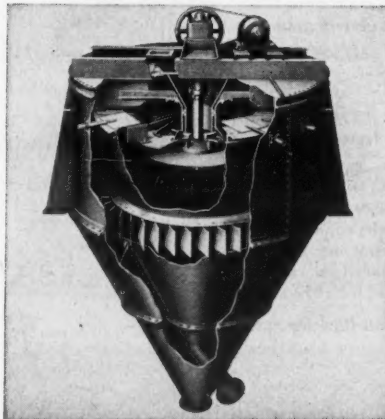
DRY BATCH MIXERS — 4-way mixing action mixes two or more ingredients into an inseparable, homogeneous mass. Open door accessibility makes cleaning easy. Capacities 1/4 ton to 2 tons.



MOTO-VIBRO SCREENS — screen everything screenable. Open and closed models with or without feeders. Many types and sizes . . . screens from 1/2" to 60 mesh.



DEN AND EXCAVATOR — speeds processing of superphosphates. Easily operated by two men . . . produces 16 to 40 tons per batch and up to 480 tons per day of superior fertilizer free from lumps.



AIR SEPARATOR — for finest separation of materials. Capacities from 1/4 ton to 50 tons per hour in fineness of 40 to 325 mesh and finer. Increases production of fines, cuts power consumption costs.

Sturtevant Processing Equipment . . . Grinders, mixers, separators, screens, etc. . . can help you *reduce* today's high manufacturing costs by increasing both machine and operator output, lowering production costs, assuring high quality products.

Records in all types of industries — chemical, plastics, ceramics, cement, food, construction — prove that this equipment works dependably day in, day out with little, if any, maintenance.

Used individually or linked together in proper sequence, they do the job faster and easier than other types . . . handle a larger variety of work.

It will pay you to investigate Sturtevant Processing Equipment for your plant. There is a size and type of machine that will meet your requirements. Write for information.

STURTEVANT MILL COMPANY

119 CLAYTON STREET
BOSTON 22, MASSACHUSETTS
Designers and Manufacturers of:
CRUSHERS • GRINDERS • SEPARATORS
CONVEYORS • MECHANICAL DENS
and EXCAVATORS • ELEVATORS
MIXERS

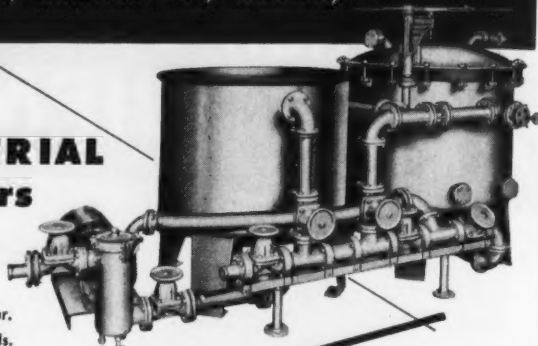
When inquiring check CP 3151 on handy form, pgs. 2-3

Bonus Performance

IN SOLUTION CLARIFICATION

Any Solution—Any Quantity

INDUSTRIAL Filters



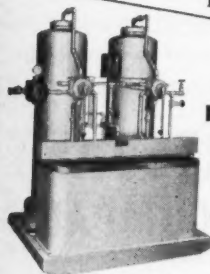
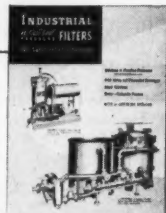
100 to 15,000 gallons per hour.
Portable and stationary models.
Special filtering systems engineered to
meet unusual requirements.

and it's performance that counts . . .

The engineering, design, and construction of INDUSTRIAL filters have proved out in long service. With the outlet near the top of the chamber a uniform precoat is deposited on the filter leaves as the solution fills the chamber. The outside lockup simplifies the lockup of the leaf and bag assemblies. INDUSTRIAL exclusive air-wash cleaning method practically eliminates the usual labor, downtime, and the inconveniences of dismantling the filter after each cycle. INDUSTRIAL filters are often in operation for months without removing the cover. All these features add up to bonus performance—clear filtrate at low over-all cost per gallon.

Ask for Bulletin 100-CPI

This bulletin gives complete information on INDUSTRIAL features, the sizes and capacities of the standard models, and details on the uses of INDUSTRIAL filters for solution clarification.



INDUSTRIAL Ion-Exchange Demineralizers For Low-Cost Chemically Pure Water

Standard INDUSTRIAL demineralizer units are available with capacities of 200 to 1000 gph. Special units of any capacity are engineered to requirements.

Write for Full Information and Recommendations

INDUSTRIAL FILTER & PUMP MFG. CO.

5908 Ogden Avenue
Chicago 50, Illinois

FILTERS	PUMPS	CORROSION TESTING APPARATUS
Pressure Type	Centrifugal	Salt Fog • Humidity
RUBBER DIVISION		
Vulcanized Linings • Molded Products		
WATER DEMINERALIZERS		

When inquiring check CP 3152 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

High shearing action assures quick liquid mixing . . .

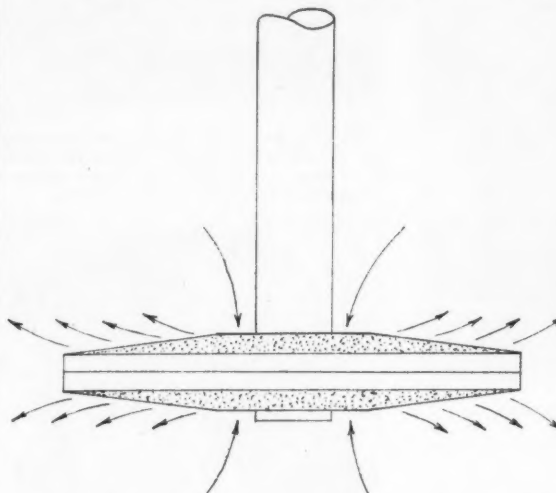
liquid is filtered by porous stainless steel discs as it passes through them

Uses: Liquid and gas dispersing, mixing, and batch filtering.

Features: High shearing action and optimum dispersions. Liquid is filtered simultaneously during the dispersion or mixing cycle. Dismantling for cleaning can be done quickly.

Description: The Poro . . . Velocell unit is made in two halves, each a saucer-shaped porous stainless steel disc welded to a three-spoke, wheel-design stainless steel mounting plate. Each disc has a large orifice which is concentric to the shaft going through the center.

In operation, the shaft is driven at high speed, and liquid



Arrows indicate how liquid enters orifices of whirling porous stainless steel cell, and how it is forced through and out by centrifugal force

enters the cell through the orifices. It is forced through the porous metal walls by centrifugal force, being filtered as it passes through.

Standard units are 2-7/8" OD, but other sizes can be furnished if desired. Multiple cells can be mounted on the shaft for increased capacity.

(Developed and manufactured by Equipose Controls, Inc., Dept. CP, PO Box 269, Bronxville, N. Y. . . or for more information check CP 3153 on handy form, pages 2 and 3.)

Describes operational features of loss-in-weight feeder

Four-page bulletin discusses operation, feed range, and components of loss-in-weight, gravimetric feeder. Sectional illustration shows principal parts of machine, which is intended for use with dry materials. Feeder requires floor area of 37 x 49", plus 36" front and back for door clearance. According to manufacturer, accuracy is within 1% by weight when delivering powdered, granular, or lump material up to 1" in size. Two models have scale beam capacities of 3000 and 10,000 lb.

Feeder range is from minimum of 1 lb per hr to maximum of 4000 lb per hr. Bulletin concludes with description of vibratory feed mechanism, synchronous feed rate control,



There's NO SUBSTITUTE FOR EXPERIENCE

Consult GIDCO
for Bamag's

80 year

engineering and
process
equipment
know-how

- Nitric acid plants including direct oxidation by pure oxygen for the manufacture of high concentrated acid
- Fertilizer Plants
- Recovery of waste pickling acids in steel mills
- Recovery of sulfur from Petroleum and Gases including Sweetening Alk-acid Plants
- Treatment of fish oil for its use as edible oil and fats
- Wecker plants for increase of yields in existing oil refineries
- Refining and Hydrogenation of oils
- Electrolysers for Hydrogen and Oxygen
- Steel Mill Equipment
- Equipment for Water Treatment

Write for descriptive literature.

GENERAL INDUSTRIAL
DEVELOPMENT
CORPORATION

Exclusive Agents for

BAMAG-MEGUIN

AKTIENGESELLSCHAFT

270 PARK AVE. • NEW YORK 17, N. Y.

When inquiring check CP 3154
on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

and accessories such as chart recorder, hopper agitators, and flow measuring devices. Bul 30-H12 is issued by Omega Machine Co., Dept. CP, 345 Harris Ave., Providence 1, R. I. When inquiring specify CP 3155 on handy form, pages 2 and 3.

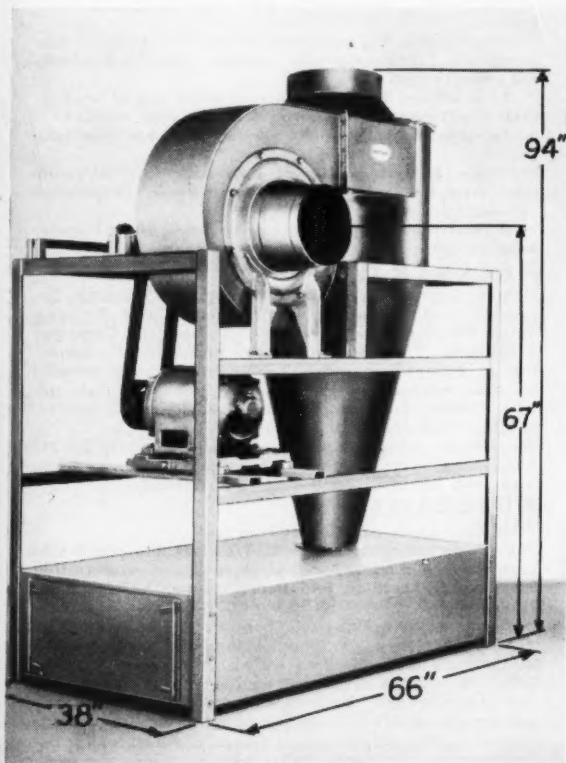
Dust from 5500 cfm air removed by unit taking 17 ft² floor area . . .

especially helpful where toxic elements must be discharged out-of-doors

Uses: For collecting almost every type of industrial dust — dusts, lint, and chips generated in grinding, polishing, buffing, turning, and milling operations . . . dust control in the chemical field, especially where toxic elements must be discharged out-of-doors.

Features: Suits jobs requiring the handling of 5500 cubic feet of air per minute. Small amount of plant floor space (approx 17.4 sq ft) required for installation is reported to be an outstanding feature.

Description: The Dustkop Model 50N60 is a self-contained, unit-type dust collector — consisting of motor (10 hp) driven fan, cyclone separator, and dust



Note the small floor space required for large capacity (5500 cfm) dust collector

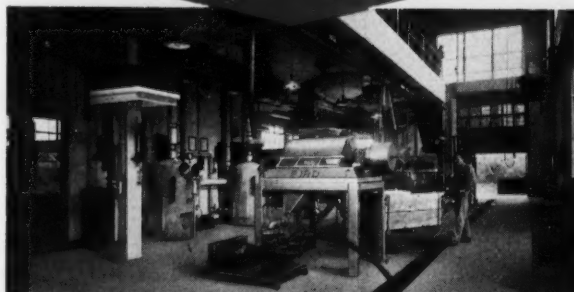
storage compartment. The illustration shows that merely 34 x 60" of floor space is required (maker reports this is small area for capacity rating). Unit develops 5500 cfm at 4" of water on a 12" inlet.

Standard hoods, branches, elbows, hose, and other fittings are available to suit the installation.

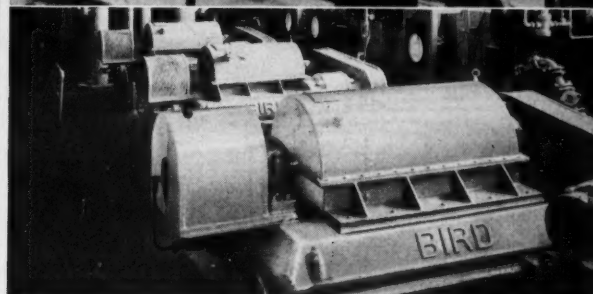
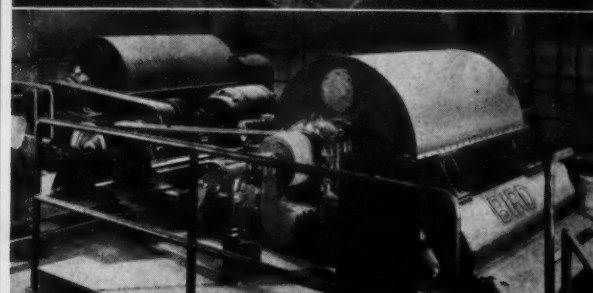
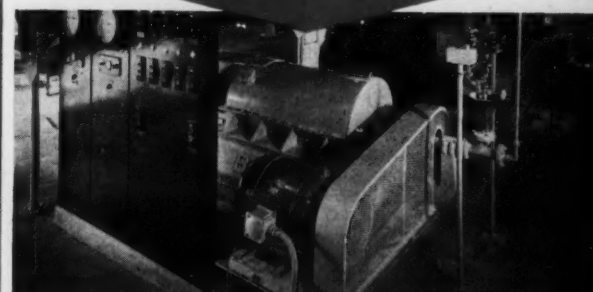
(Product of the Aget-Detroit Company, Dept. CP, Ann Arbor, Mich. . . . or for more information check CP 3156 on handy form, pages 2 and 3.)

JUNE, 1952

GET FILTRATION FACTS HERE FIRST



THEN PUT BIRD FILTERS ON THE JOB



No need to guess or gamble.

The Bird Research and Development Center has everything it takes to get reliable findings on *your* solids-liquids separation problems — get them on an adequate scale — and get them fast.

Hundreds of installations on everything from ores to oxides, pigments to potato starch, fish meal to foundry sand, testify to the success of this policy of *filtration facts first, then performance in the field.*

BIRD MACHINE COMPANY · South Walpole · Massachusetts

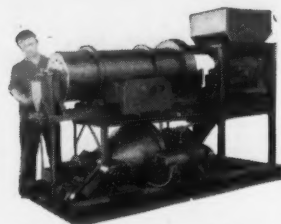
THE BIRD

Continuous Centrifugal FILTER

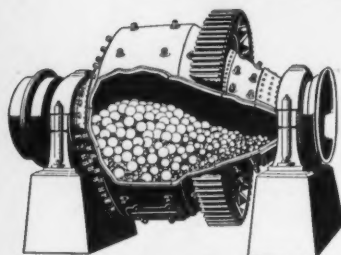
When inquiring check CP 3157 on handy form, pages 2-3

MATERIAL PROCESSING EQUIPMENT

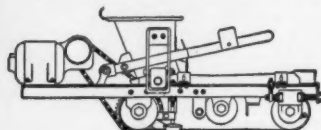
... plus engineering "KNOW-HOW"



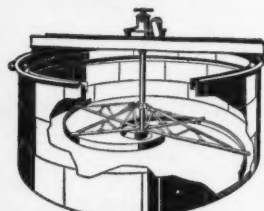
WET OR DRY "PACKAGED" GRINDING SYSTEM Bulletin AH-373-13



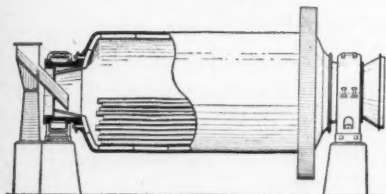
CONICAL MILLS
Bulletin 17-B-13
TRICONE MILLS, Bulletin AH-414-13



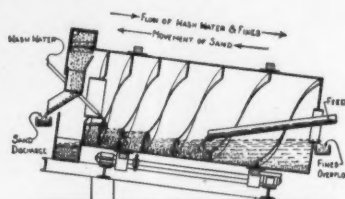
CONSTANT-WEIGHT FEEDERS
Bulletin 33-D-13



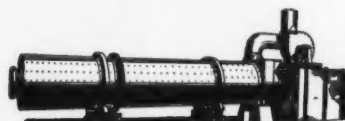
THICKENERS, CLARIFIERS
Bulletin 35-C-13



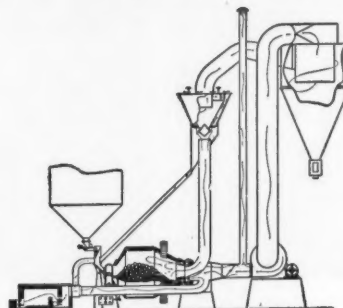
ROD MILLS
Write for Bulletin 25-C-13



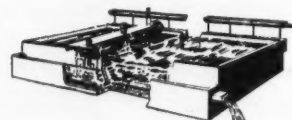
COUNTER-CURRENT CLASSIFIERS
SAND WASHERS
Bulletin 39-B-13



ROTARY DRYERS, KILNS, COOLERS
Bulletin 16-D-13



AIR CLASSIFYING SYSTEMS
Bulletin 17-B-13



AUTOMATIC BACKWASH
SAND FILTERS
Bulletin 46-A-13

HARDINGE
COMPANY, INCORPORATED

YORK, PENNSYLVANIA—240 Arch St. Main Office and Works
NEW YORK 17 • SAN FRANCISCO 11 • CHICAGO 6 • HIBBING, MINN. • TORONTO 1
122 E. 42nd St. 24 California St. 205 W. Wacker Dr. 2016 First Ave. 200 Bay St.

When inquiring check CP 3158 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

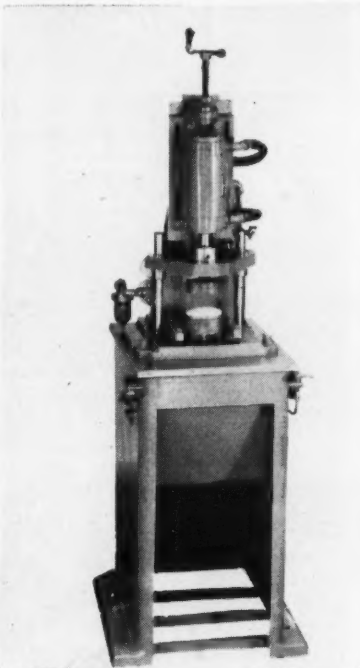
**Fingers are safe
by air-controlled
press...**

ram won't come down unless both hands are clear

Uses: For pressing soap cakes, and for die cutting plastic forms and many other materials.

Features: Impossible for operator to have hand in the way of ram as it is applying pressure.

Description: Operator must use both hands at the same time to operate the air controls. The dual control levers, one at each side of the press,



Doesn't collect loose fingers

must be held down simultaneously or the ram will not function. Operator can be seated at the press while working.

Pressures are quickly adjustable up to 2500 lb surface pressure.

(The Safety Air press is made by Houchin Machinery Company, Inc., Dept. CP, Hawthorne, N. J. . . . or for more information check CP 3159 on handy form, pages 2 and 3.)

Readers of CHEMICAL PROCESSING are invited to submit concise briefs of their processing problems. With your permission these will be published (anonymously, if desired). We will place you in contact with any of the 33,000 people receiving CP who offer a solution.

Complete 4000 barrel per day

REFINERY FOR SALE

A complete small refinery, on a 69-acre site, connected with two railway lines, linked by highways with Central Canadian and mid-western United States cities and only 15 miles from Great Lakes system docks, is offered for sale. The plant, which is at Petrolia, Ontario, becomes available because its owners, Canadian Oil Companies, Limited, are now bringing on stream a much larger, ultra-modern refinery at nearby Sarnia.

In addition to full equipment to process crude oil into gasolines, lubricating oils, greases and by-products, the refinery has:

- 30 buildings, the main units of which are of brick or reinforced concrete and with load-carrying walls;
- Adequate water supplies via town system from Lake Huron;
- Ample 60-cycle electrical power at low industrial rates from the Ontario Hydro-Electric Power Commission system;
- A central power plant, comprising two 500 HP water tube boilers.

REFINERY

Newer sections include Flash Topping, Cracking, Reforming and Polymerization, and associated Treating units required by Universal Oil Products Company processes. They have operated under U.O.P. inspection and recording and U.O.P. engineers have advised on maintenance. Crude capacity is 4,400 barrels per day. Therman cracking capacity is 1,200 B.P.D. and reforming capacity 800 B.P.D.

Steel tank storage capacity, above ground, is 375,243 barrels. A 4-inch pipeline connects the storage facilities with dockside on the St. Clair River.

BUILDINGS

Total floor space of 80,000 square feet. The office building, which also houses the plant laboratory, is a modern, well-built structure aggregating 9,000 square feet on two floors. Other buildings include:

- Garages • Electrical Shop • Pipefitting Shop
 - Carpenter Shop • Machine Shop • Welding Shop
- While built and operated as an oil refinery and efficient to process a relatively small crude oil throughput, the plant may be adaptable to other manufacturing processes.

Inquiries are invited and additional details can be supplied by:

Mr. G. S. Middaugh,
The Canadian Oil Companies, Ltd.,
204 Richmond Street, West,
Toronto, Ontario, Canada.
Telephone EMpire 6-3031.

When inquiring check CP 3160 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Mullers in mixers loaded by spring for better mix control . . .

two models have capacities of 2000 and 4000 lb; muller inertia at minimum

Uses: Mixing of large quantities of dry, semi-dry, and pasty materials.

Features: Two mixers have higher capacity than other models in manufacturer's line. They develop high mulling pressures with minimum of muller inertia. This has been done by using comparatively light mullers and employing a spring-loaded muller arrangement which allows complete adjustment to obtain variable muller pressures for all types of materials. Since the pressure can so easily be adapted to the material being mixed, the efficiency of the mulling action is increased.

Because of a new plow design and the muller suspension, the material to be mixed is subjected to much more violent agitation. The agglomerate grains are broken up, any tendency to form "muller cake" is reduced, and a smooth, evenly blended material results.

Description: Units are called the 2F and 3F Mix-Mullers. First has batch capacity up to 2000 lb or 30 cu ft, and motor horsepower of 25 to 30; the latter has a batch capacity of 4000 lb or 60 cu ft, and a motor horsepower of 60 to 75.

Mullers are mounted on hubs containing bearing assembly; complete hub can be replaced without removing muller from mixer. Very large discharge door, located within one wear-plate quadrant, assures rapid discharge of batch.

The Crib has removable section through which all rotating machinery can be removed without interfering with overhead hoppers and other structures.

Inside and outside plows are adjustable vertically and radially by positive screw device on upper end of plow brackets . . . without entering mixer. Mullers, center shaft, and rocker arm bearings are lubricated by centralized system from Alemite fittings which are accessible from the outside of the mixer.

(Announced by Simpson Mix-Muller Division, National Engineering Company, Dept. CP, 549 W. Washington Blvd., Chicago 6, Ill. . . . or for more information check CP 3161 on handy form, pages 2 and 3.)

Describes line of jet mixers to satisfy processing needs

Four-page catalog describes line of jet mixers for chemical, drug, and textile processing fields. Units are designed for wet mixing liquids and solids, and for emulsifying, homogenizing, and dispersing applications. Jets are equipped with interchangeable rotors and stators. These parts are designed for mixer adaptability to different mixing problems. One interchangeable stator is provided with screened surface to prevent pickup of material which would damage high speed rotor. Screened stators also aid in particle size reduction.

Several features are listed for units which are said to be capable of handling liquid viscosities ranging from water-thin through heavy-bodied emulsions as high as 30,000 cp.

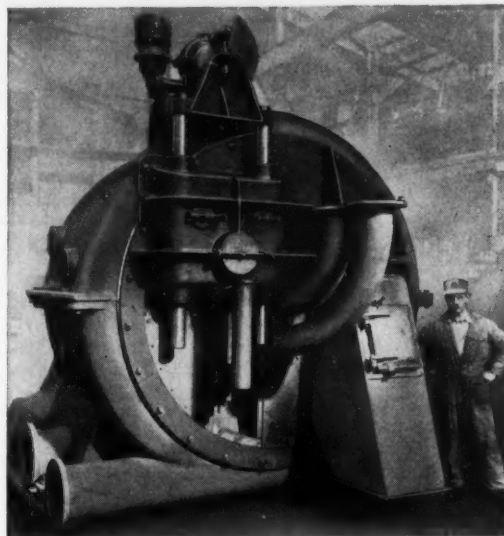
Units are said to mix intensively without stratification, and to continually cut through agglomerates and expose fresh surfaces. "Barrington Jet Mixers" is issued by Barrington Engineering Corporation, Dept. CP, 110 W. 40th St., New York 18, N. Y. When inquiring specify CP 3162 on handy form, pages 2 and 3.

REINEVELD Centrifugals

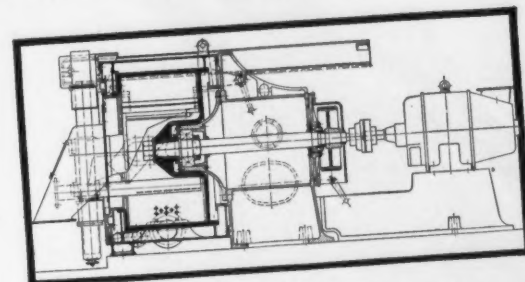
The International

Are Now Available in the United States and Canada

through *Heyl & Patterson*



79" REINEVELD Centrifuge



Main Bearing at the Center of Gravity

REINEVELD'S Patented Design

Guarantees

**Greater Production Lower Impurities
Drier Product Lower Maintenance**

Advantages of Reineveld Centrifugals

1. Freedom from Vibration
2. Large Capacity
3. More Cycles per Hour
4. Simple, Rugged Construction
5. Low Maintenance

For Complete Information on Reineveld Centrifugals . . . Write for Booklet 4-RC-2

Reineveld Centrifuges, Separators and Classifiers . . . manufactured by Reineveld Engineering Works, Delft, Holland . . . can now be obtained through the agency of Heyl & Patterson.

Reineveld machines have widespread applications in the Chemical Processing Industries because of their outstanding processing and mechanical advantages.

Reineveld's patented design features the main bearing at the center of gravity of the rotating mass. This outstanding feature allows a higher safe rotating speed and freedom from vibration. The exclusive Reineveld processing method makes possible the formation of a superior, fast-draining filter bed.

Reineveld Centrifugals range in size from 36" to 79" drum diameter. In any size machine Reineveld Centrifugals give Greater Production . . . Drier Product . . . Lower Impurities . . . Lower Maintenance.

Heyl & Patterson laboratory facilities are at your service to test your material and recommend an economical and guaranteed application.

Heyl + Patterson, Inc.

"SINCE 1887"

55 WATER STREET • PITTSBURGH 22, PA.



When inquiring specify CP 3163 on handy form, pgs. 2-3

*Fitted for
Every Job Need*



DIPPED NEOPRENE INDUSTRIAL GLOVES

SAFE—They can help prevent costly accidents. The rough-surface fingers assure positive, easy gripping. And Neoprene withstands gasolines, oils, greases and corrosive chemicals.

COMFORTABLE—The curved finger construction conforms to the natural curve of hand—eliminates straining and pulling. Highly flexible, they permit easy, natural working motions.

ECONOMICAL—They are built for long wear and tough service. Full range of sizes, lengths and weights. U. S. technical men will be glad to analyze your glove needs and recommend the correct glove for each of your jobs. Available from your nearest United States Rubber Company Branch.

U. S. INDUSTRIAL GLOVES



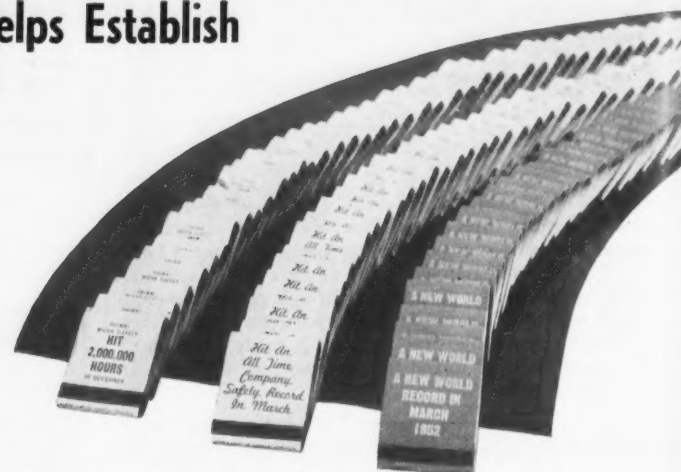
UNITED STATES RUBBER COMPANY

When inquiring check CP 3164 on handy form, pgs. 2-3

Page 126

Three-Point Program Helps Establish World's Safety Record at Soap Plant

At Procter & Gamble's Chicago facility, more than 600 employees have rolled up over 3,644,900 injury-free hours



Thousands of safety match covers were used at various stages of record-setting period to remind employees to think and work safely

WHAT is an effective safety program? This is a question that has to be answered by each individual company, with special thought to the types of manufacturing operations and safety hazards resulting from them.

With the Procter & Gamble Co., safety for years has been considered a "line responsibility with active assistance from the safety engineer at each factory." An adequate measure of its effectiveness came recently when the company's Chicago factory, with more than 600 employees, worked over 3,644,900 injury-free man hours, establishing a new world's safety record for the soap industry.

A three-point premise is used as a basis for P&G's safety program at each factory: some kind of plan, the means of generating enthusiasm in the plan, and consistent follow-up of the plan.

Training for safety at P&G begins early with the safety engineer. As part of the orientation program for his new job, he is sent out to a factory which has an outstanding safety record to get the feel of the safety consciousness and to observe a program specialized to promote interest and enthusiasm. He accompanies the central safety en-

gineer on pre-start-up inspections of new equipment and on audits made at the factories.

Once a safety program begins, it is up to the safety engineer to make periodic audits of his factory to see that the program is operating efficiently. Less frequently, the central safety engineer audits to make sure that all safety precautions are being taken and that safe practices are being observed.

Before the actual physical inspection of the plant begins, a spot check is made of new and transferred employees on safety standards. Safety ratings are checked on all employees who have been with the company less than two years. An evaluation of the use of bulletin boards for safety is made. Injury records and other records kept at the factory that involves safe practices and the removal of safety hazards are checked.

In the actual physical inspection of the plant, unsafe wiring, slippery floors, unsafe practices in the operation of machines and the guarding of machines are a few of the many hazards looked for. All equipment receives close scrutiny.

Each factory inspection is made with two thoughts in mind: safety and personal protection for all employees and protection for the factory.

When the Chicago plant's safety program began on May 20, 1949, it was set up with the realization that 94% of the accidents occurring at the factory were due to people just not thinking safety. An employee safety committee was organized to promote the necessary safety thinking. Each department has from one to four members on the committee (depending upon the size of the department) who serve three to four months. In departmental safety meetings the committee members make reports of unsafe practices and conditions they see in the factory, particularly in their own departments.

They also instruct and remind fellow workers of unsafe practices. They review these in departmental meetings, note

During course of such a meeting of employee safety committee, members report on unsafe practices in their departments

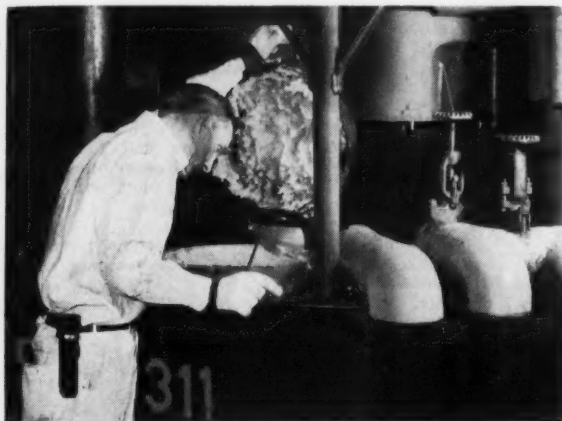


CHEMICAL PROCESSING

corrective steps taken, and investigate with the safety engineer and supervisory safety committee all accidents and near accidents which occur in their departments. Once a month committee members attend the factory-wide employees' safety committee meeting where they receive training and information to take back to their own department meetings.

Committee members rotate in each department so that in an 18 month's period everyone in the factory has been a member. And before a committee member's term is up, he will advance to chairman of the committee in his department.

There are two other important monthly meetings. One is a superintendent's safety meeting which all supervisory personnel attend. The second is the supervisory safety committee meeting with the safety engineer and four rotating supervisory members. Each of the 4 serves four months: the first month in charge of the review of accidents and near accidents, the second month handling



Re-enacting a scene the Chicago factory used in a series of slides which demonstrated unsafe practices. Carried on the photograph was the following line: (What's wrong with this picture?)

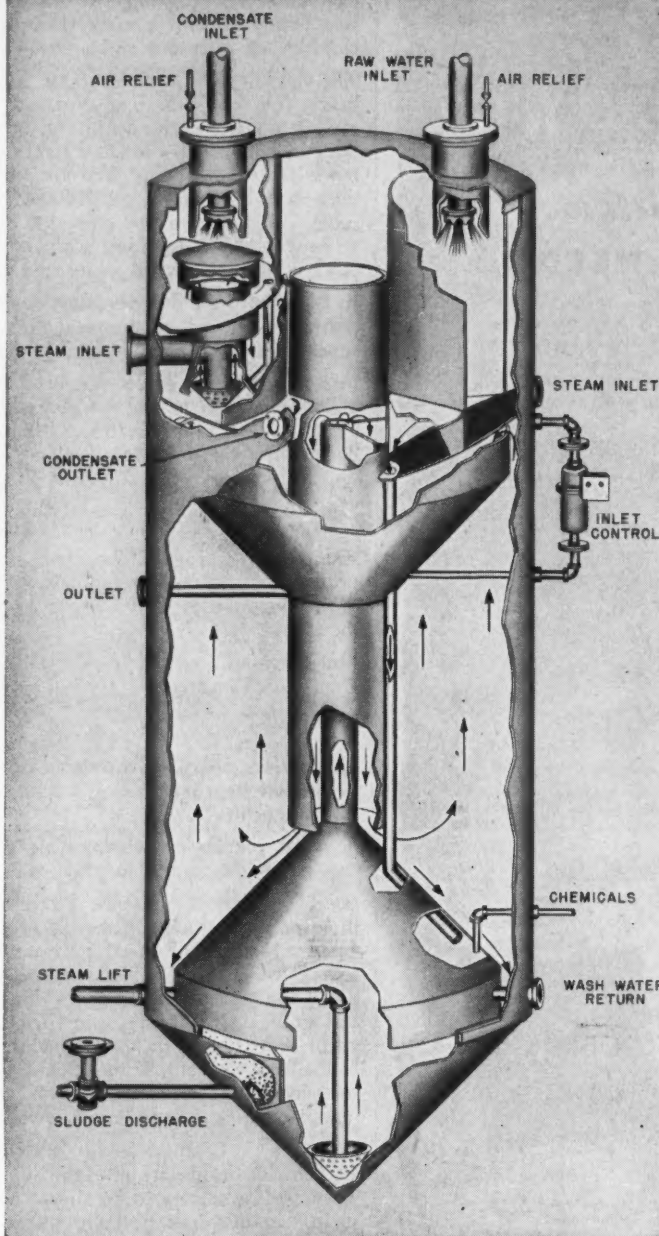
of audits of hazards and practices, the third month in charge of interest and publicity, and the last month as committee chairman. The safety engineer acts as permanent secretary.

Another key to P&G's success at the Chicago plant has been the periodic "shot in the arm." The safety program is never allowed to become stale. For example, safety matches with a printed safety message were distributed as one method to recharge the program. Shortly before the 2,000,000 man hours goal was reached on December 6, 1950 match books with safety slogans were distributed around tables in the lunch club. The slogan "Think! Work Safely. Hit 2,000,000 Hours in December" was used. As the factory went over the company record, a new set of match books urged, "Hit An All-Time Company Safety Record in March. Think. Work Safely." And as they neared the world's record a third set of match books was used: "A New World Record in March 1952. We Can Do It Together. Think. Work Safely."

Another shot in the arm was the use of kodachrome slides in departmental safety meetings. For the first series of slides, employees throughout the factory posed 15 typical unsafe practices from which serious accidents had actually resulted. A similar series of slides was used a second time, and a third set is now being prepared. With each set, some variation in the way unsafe practices are shown adds new interest in the slides.

(Continued on next page)

The Hot Process ACCELATOR[®]



MULTI-PASS TREATMENT FOR

- Softening
- Silica Reduction
- Deaeration of Makeup and Condensate



HERE'S THE ANSWER TO 3 OF THE POWER ENGINEER'S MOST COMMON PROBLEMS

SOFTENING: Positive internal slurry recirculation insures maximum softening, alkalinity reduction, and turbidity removal with a minimum of chemical expenditure. A steam lift effects the recirculation thereby eliminating mechanical pumping devices. A storage compartment within the tank holds sufficient treated water to handle momentary peak demands.

SILICA REDUCTION: Prolonged contact of the water undergoing treatment with the recirculating slurry as well as the redissolving of magnesium in the slurry, reduce silica to a new low.

DEAERATION: The steam lift effectively deaerates the makeup water undergoing treatment, thereby eliminating the need for separate deaerating mechanisms. The condensate enters a separate chamber in the upper portion of the tank and is recycled and scrubbed by its own steam lift system.

FOR THE COMPLETE STORY
on how these results are accomplished, as well as a complete and informative discussion on boiler feed water treatment, write now
for **BULLETIN 1855**



INFILCO INC. Tucson, Arizona

Plants in Chicago & Joliet, Illinois

FIELD ENGINEERING OFFICES IN 26 PRINCIPAL CITIES

When inquiring check CP 3165 on handy form, pgs. 2-3

Automatic Sprinkler 10-point FIRE PROTECTION



**always starts with a
SURVEY OF YOUR NEEDS!**

Adequate fire protection is as important to your business, as your physical well-being is to you. What would you think of your doctor if he diagnosed and prescribed treatment without making an examination? On a similar basis, your fire protection equipment cannot provide complete safety unless the specific needs are pre-determined and the system engineered to your exacting requirements. That's why the first point in "Automatic" Sprinkler 10-Point Fire Protection is "JOB SURVEY and ENGINEERING ANALYSIS...detailed to meet individual needs."



Bell Brothers Company, Inc., Muncie, Ind.—another "Automatic" Sprinkler installation.

10-Point Fire Protection...

as offered to you by "Automatic" Sprinkler not only safeguards against fire under any conditions... it actually produces income by reducing insurance rates. Here are the 10 points:

1. Job survey and engineering analysis
2. Basic fixed temperature systems
3. Rate-of-temperature-rise protection
4. Quality control
5. Accurate prefabrication
6. Qualified installation craftsmen
7. Nationwide organization
8. Inspection & maintenance
9. Continuing research
10. Convenient payment contracts

Get the FACTS! Write for our informative 36-page book, "The ABC of Fire Protection." It's free!

"AUTOMATIC" SPRINKLER CORPORATION OF AMERICA
YOUNGSTOWN 1, OHIO
OFFICES IN PRINCIPAL CITIES OF NORTH AND SOUTH AMERICA

"Automatic" Sprinkler
FIRST IN FIRE PROTECTION

When inquiring check CP 3166 on handy form, pgs. 2-3

SAFETY

(Continued from preceding page)

Exceptionally good safety movies from other industries and from the National Safety Council were added to the company's movies to refresh the safety program. Placing 200 colored cards with safety slogans along pipes, near valves, by corners, etc was another idea that sparked the Chicago safety program. In addition, safety in the home was promoted with a safety letter contest for employees' children 12 years old and under.

The employees are made aware of safety on their jobs even before they reach the time card rack. Directly above that rack is a safety derby board and opposite this is a safety bulletin board with the latest total of hours worked without a lost-time injury. The same figures are easily seen on a room-high green and white safety clock in the lunchroom. If a department goes two calendar years without an expense injury (accident with cost in excess of a regular office visit) this record is marked by a special occasion.

In addition to the many employees on the day shift who are trained in first aid, all the plant night watchmen and night supervisors have been trained to handle first aid cases.

First aid review courses are held periodically. In case of an accident requiring a doctor's care at night a specific procedure is followed to immediately notify the plant doctor, hospital and safety engineer.

With each P&G factory there is a unique safety program. The program is designed to highlight major safety hazards at the factory operation. The "shots in the arm" to re-strengthen the program also are unique to fit the particular program. Yet the three fundamental principles mentioned in the beginning are common to all safety operations within the company.

(Information courtesy of The Procter & Gamble Co., Dept. CP, Cincinnati 1, Ohio)

Protection plus antiseptis provided by three hand creams...

that contain hexachlorophene and are formulated to be almost neutral in pH

Uses: Line of antiseptic protective creams consists of three products, each for specific protection against certain types of irritants. Protective Cream No. 211 is an oil resistant, water-soluble, bland vanishing cream for protection against dust-borne irritants, viscous oils, dirt, greases, and grimes. No. 311, a water-resistant, soft cold cream, is for protection against dilute acids and alkalis. No. 411 is a solvent-resistant, water-soluble, bland vanishing cream for protection against organic solvents, acetates, and cooling and cutting oils of low water content.

Features: Creams contain hexachlorophene to provide a "zone of inhibition" against *Staphylococcus aureus*. They are formulated to be almost neutral in pH, thus assuring against irritation from free acids or alkalis.

Description: The creams come in tubes, or can be dispensed from the newly designed Liquicreme dispenser. Manufactured of sturdy polyethylene, the dispenser is designed to dispense a pre-determined amount of cream with each stroke of the lever. It contains an inner collapsible polyethylene bag which affords complete protection for the antiseptic cream. Cream does not come in contact with any working part of the dispenser.

(Made by West Disinfecting Company, Dept. CP, 42-16 West St., Long Island City 1, N. Y. . . . or for more information check CP 3167 on handy form, pages 2 & 3.)

HERE'S REAL PROTECTION

plus long-wearing
economy

Sawyer protective
clothing is

*Highly resistant to all common
chemical solutions

*Not affected by grease, oil or gasoline

*Positively will not crack, blister or peel

All Sawyer protective clothing is made with top quality base fabric saturation-coated with 6 coats of genuine DuPont Neoprene Latex*. It's tough as mulehide, too . . . takes endless rubbing, scraping, snagging and still gives full protection.

Also: Three-quarter and long coats, coveralls, aprons and many other styles. All clothing made in black and yellow.

Styles
illustrated
527 Jacket
528 Pants
557 Hat

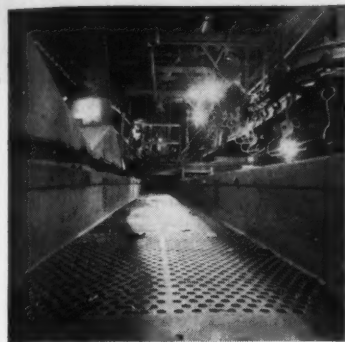


*Sawyer fabrics are coated by
The Brunene Company, a division of

**THE H.M. SAWYER
& SON CO.**
FROG BRAND
CAMBRIDGE
MASSACHUSETTS

When inquiring check CP 3168
on handy form, pgs. 2-3

CHEMICAL PROCESSING



HANDLES ANYTHING A BELT CONVEYOR CAN'T

**Hewitt-Robins
Vibrating
Conveyor**

You can handle a full pan load of material . . . hot or cold, wet or dry, lump or pulverized . . . quickly, quietly . . . on the horizontal—downhill—uphill to 10° with a Hewitt-Robins Vibrating Conveyor. For this unit takes multiple feeds—starts under full pan load—has feed action and spreads surges. What's more, the Hewitt-Robins Vibrating Conveyor requires no counter balancing weights . . . provides you with a simpler, lower-cost mechanism that is easy to install—cuts maintenance to a minimum—needs lubrication at only 4 centrally located points.

Discover how a Hewitt-Robins Vibrating Conveyor can improve your operation. Write for Bulletin 135.

HEWITT-ROBINS INCORPORATED
STAMFORD CONNECTICUT

Hewitt Rubber Division
Hewitt Restfoam® Division

Robins Conveyors Division
Robins Engineers Division

When inquiring check CP 3169 on handy form, pgs. 2-3

BLAW-KNOX GRATING



Electroforged into rigid, one-piece panels.



Twisted cross bar prevents slipping.

- ...GIVES
BETTER
SERVICE
ON
5 COUNTS**
- 1 SAFER FOOTING
 - 2 GREATER STRENGTH
 - 3 LONGER LIFE
 - 4 LOWER MAINTENANCE
 - 5 MORE OPEN SPACE

Bring your open steel flooring problems to Blaw-Knox for expert help. Bulletin 2365 sent on request.

BLAW-KNOX DIVISION of Blaw-Knox Company
2076 Farmers Bank Bldg., Pittsburgh 22, Pa.

BLAW-KNOX *Electroforged*
STEEL GRATING

When inquiring check CP 3170 on handy form, pgs. 2-3

JUNE, 1952

SAFETY

Monitors for stray static charges on floors . . .

that may lead to explosions in hazardous atmospheres

Uses: To test conductive floors where static charges or stray electrical potentials may cause explosions in hazardous atmospheres or materials. Can also be used for electrical insulation resistance measurements as well as wiring continuity and voltage checks.

Features: Compact; easily operated via push button.

Description: Vibrotest Model 267 has ranges of 0-20 megohms at 125v DC test potential and 0-200 megohms at 500 v DC test potential.



Measuring electrode with its lead adjoining instrument

Also ranges of 0-20,000 ohms and 150-300-600 v AC and DC.

Instrument is housed in a welded steel case measuring 12 1/4 x 9 x 10". Included are two special five pound measuring electrodes with pairs of five and ten foot test leads.

Weight complete with batteries is 31 pounds.

(Developed by Associated Research, Inc., Dept. CP, 3758 W. Belmont Ave., Chicago 18, Ill. . . or for more information check CP 3171 on handy form, pages 2 and 3.)

Clothing designed to protect the lady welder . . .

no openings to permit entrance of flying sparks

Uses: Protective clothing designed exclusively for women welders.

Features: Styled to allow free and easy movement, yet fitting snugly so

(Continued on next page)

Pyrene
REG. U.S. PAT. OFF.




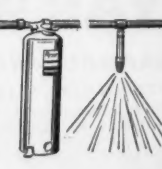
**CAREFULNESS ISN'T ENOUGH
YOU NEED PYRENE, TOO!**



There's a Pyrene for every fire hazard

The watchword of fire prevention is *Be Careful*. But fire may come—any time. When it does, Pyrene* can make the difference between a harmless scare and a gutted business. Whatever your fire hazard, there's a Pyrene to cope with it—for Pyrene makes everything from hand extinguishers to complete automatic fire-fighting systems.

*T.M. Reg. U.S. Pat. Off.

 <p>Vaporizing Liquid Always dependable, multi-use extinguisher.</p>	 <p>Cartridge-Operated For ordinary fires. No annual recharging.</p>	 <p>Chemical Foam For flammable liquids, ordinary combustibles.</p>	 <p>Systems Large and small, manual and automatic.</p>
--	--	---	--

... and other approved extinguishers

PYRENE MANUFACTURING COMPANY
691 Belmont Avenue Newark 8, New Jersey
Affiliated with C-O-Two Fire Equipment Co.

When inquiring check CP 3172 on handy form, pgs. 2-3

A COMPLETE LINE OF GAS ANALYSIS SYSTEMS

THERMOCOUPLE TYPE PRECISION COMBUSTIBLE GAS ALARM SYSTEM

Tube Sampling—Indicating or Recording

Protects 4 to 8 danger spots with one installation! Specified where explosive concentrations do not reach critical levels rapidly. Details in our Bulletin 11-86TS.

RECORDING THERMOCOUPLE TYPE PRECISION COMBUSTIBLE GAS ALARM SYSTEM

A packaged unit for the protection of processes, plants, personnel. A new, more accurate principle of gas analysis. Improved zero stability. "Fail-Safe" construction. Write for bulletin No. 11-86.

Also—Gas Analysis Instruments Utilizing The Principles of Thermal and Electro Conductivity

Our engineers will be glad to serve you.

INSTRUMENT
DAVIS
DIVISION

DAVIS EMERGENCY EQUIPMENT CO., INC.

56 HALLECK ST.,

NEWARK, 4, N. J.

When inquiring check CP 3173 on handy form, pgs. 2-3

for
• SPRAYING • WASHING • RINSING • COOLING • AIR
CONDITIONING

Get the most out of your Spraying Equipment with minimum power... with efficient spraying.

Use Yarway Nozzles. No internal vanes or other restrictions to clog or hinder flow. Two types—Yarway Involute-type producing a fine hollow spray with minimum energy loss, and Yarway Fan-type producing a flat fan-shaped spray with time-saving slicing action for cleaning.

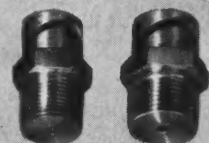
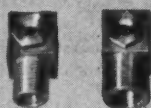
Wide range of standard sizes and capacities. Cast or machined from solid bar stock.

Thousands in use. Write for Bulletin N-616.

YARWAY SPRAY NOZZLES

YARNALL-WARING COMPANY
125 Mermaid Avenue, Philadelphia 18, Pa.

INVOLUTE-TYPE FOR HOLLOW CONE SPRAY



FAN-TYPE FOR FLAT SLICING SPRAY

When inquiring check CP 3174 on handy form, pgs. 2-3

SAFETY

(Continued from preceding page)

that there are no gaps or openings to permit entrance of flying sparks.

Description: Although this protective garment is light in weight, it still affords the proper protection. Trouser legs are flared in order to provide ad-



ditional protection for the feet and make the garment easy to put on and take off over safety shoes.

Sleeves are shaped to fit and the seams are welted and located away from the direct line of fire. Garment is made of specially selected chrome tanned leather, simulating a soft, suede-like appearance.

(Announced by American Optical Co., Dept. CP, Southbridge, Mass. . . . or for more information check CP 3175 on handy form, pages 2 & 3.

Plastic aprons to meet industrial needs

Two-page folder introduces plastic aprons for protection of industrial personnel. According to report, material is not affected by extreme changes in temperature and will not support combustion. Aprons are made of Vinylite and are said to provide positive protection against oil, grease, alkalis, and most chemicals.

Material is available in clear and white colors, and may be cleaned with damp cloth. Apron sizes are 24 x 36, 27 x 36, 32 x 44, and 30 x 44". "Plasti-pron" is issued by Carson Glove Co., Dept. CP, San Rafael, Calif. When inquiring specify CP 3176 on handy form, pages 2 and 3.

PROCESSING & ENGINEERING
DATA section
on pages 184, 186, 188, & 190.

Safe hands cut costs 5 ways

2 of many types, functionally designed for working hands:



Multi-ply coating of NEOPRENE—reinforced neoprene, extremely resistant to cutting, abrasion and chemicals. Fabric lining prevents snags, absorbs sweat, insulates, makes gloves easy on and off. Firm non-slip grip.



Natural rubber treaded palm and thumb. Has firm grip, wet or dry; wears like a tire.

We have the case records of hundreds of on-the-job tests, handling sharp, abrasive and slippery materials, with and without the presence of heat, oils, greases, acids, caustics, solvents and degreasants—where proper selection of work gloves has resulted in:

- 1: Fewer lost-time accidents
- 2: Faster, surer work handling
- 3: Less spoilage
- 4: Improved job attitude
- 5: And 40% to 70% savings in usual glove costs.

There's a correct glove for every job. Smart management makes it available.

Edmont

Edmont Manufacturing Company
1204 Walnut Street, Coshocton, Ohio

World's largest maker of coated industrial gloves

When inquiring check CP 3177 on handy form, pgs. 2-3

The Revolutionary NEW GRIP-STRUT Safety GRATING

gives MAXIMUM STRENGTH
with MINIMUM WEIGHT

RUGGED
LOW COST
NON-SKID
VERSATILE



A Globe patent feature (Patents Pending)

NOT welded. Vertical members joined by integral saddles to form a positive NON-SKID surface under all conditions. In one single unit, GRIP-STRUT Safety Grating combines great strength with light weight, its side channel members greatly reduce cost of construction and simplify installation. Easy to maintain and clean. Replaces old or obsolete types of grating. Grip-Strut has a lower cost factor than any other type of grating. Available in steel or aluminum.



GRIP-STRUT division
THE GLOBE COMPANY

4006 S. Princeton Ave.

Chicago 9, Illinois

When inquiring check CP 3178 on handy form, pgs. 2-3

CHEMICAL PROCESSING

SAFETY

Measures industrial noises on the spot . . .

sound-survey meter fits in a pocket, is completely portable, reads directly in decibels

For determining noise level from machinery, for surveys of environmental noise levels, or for any simple acoustical measurements Type 1555-A Sound-Survey Meter has several advantages. It is completely self powered and portable. Small enough to be held comfortably in one hand, it can be carried in a pocket or leather case. Despite its small size, the meter has full-size control knobs and scale.

Total sound level range of the meter is from 40 to 136 decibels and three frequency-weighting networks are provided. By switching from one network to another, estimates of the sound spectrum can be made. Instrument employs sufficient inverse feedback to overcome aging of the batteries and tubes. Inverse feedback also dispenses with gain controls, except for one chassis-mounted adjustment to compensate for tube differences when replacement becomes necessary.

(Development of General Radio Co., Dept. CP, 275 Massachusetts Ave., Cambridge 39, Mass. . . . or for more information check CP 3179 on handy form, pages 2 and 3.)



Fits in hand, but has large controls and meter

Improved vision with full protection are features of safety shield supported on chest . . .

easily-replaced visors are adjustable to allow plenty of breathing space

Uses: For providing protection of face when working with or around flying metal chips, sparks, chemicals, hot liquids.

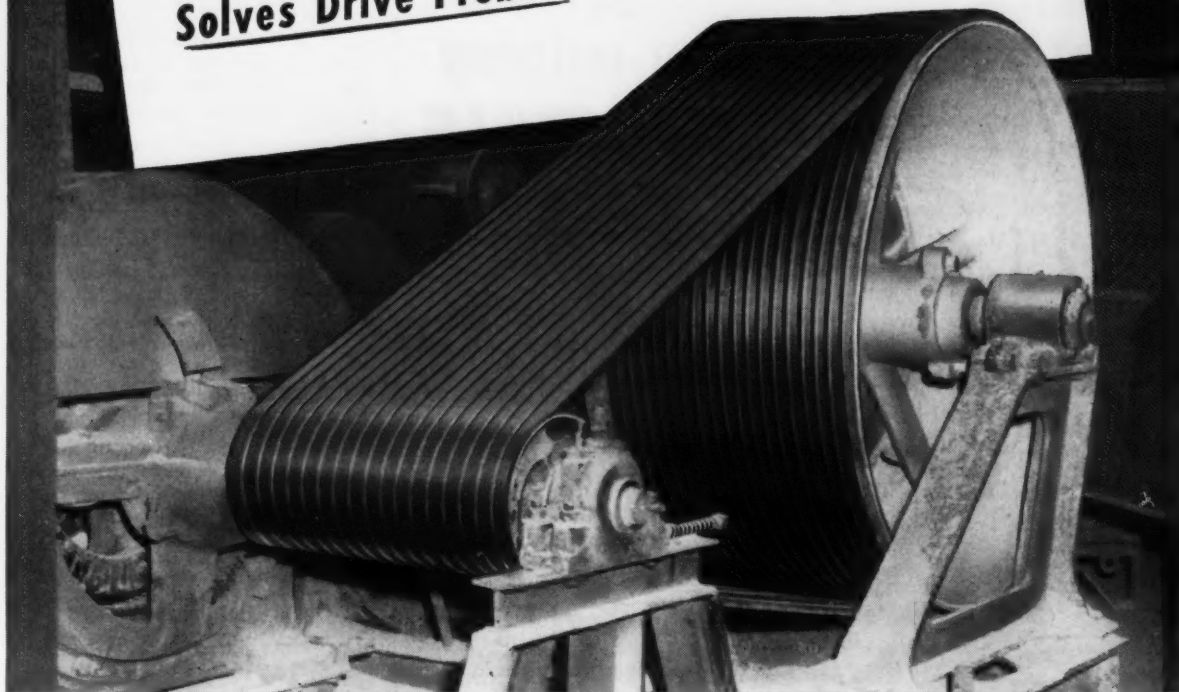
Features: Gives improved vision, eliminates "dead air" space, and provides maximum protection without binding, since it can be set at any height, angle, or distance from the face.

Description: Called the MSA Chest-Mounted Face-shield, protector is supported by easily-adjusted neck and chest straps to balance weight distribution. A soft, pliable leather pad rests on the chest without pressure or binding. When necessary, visors are easily replaced. Standard model of faceshield is supplied with a clear Chipruf Visor 8" long and 0.040" thick. Visors are available in various sizes for impact resistance, chemical splashes, and a metal screen visor for hot operations.

(Developed by Mine Safety Appliances Co., Dept. CP, Braddock, Thomas, and Meade Sts., Pittsburgh 8, Pa. . . . or for more information check CP 3180 on handy form, pages 2 and 3.)

JUNE, 1952

New BWH V-BELT Installation Solves Drive Problem for Gladding McBean



Drive at pug mill of Gladding McBean & Co. Safety guard removed for photographic purposes

The Problem:

The drive at the pug mill at the Gladding McBean & Company brick plant, Pittsburg, California, is so vital to their production it cannot be out of service for any length of time. It must operate under dusty conditions which induce slippage in ordinary belts. It must be able to take very severe pulsating loads.

The Solution:

With the installation of rugged BWH Bull Dog V-Belts the problems and difficulties were completely overcome.

★ ★ ★

Do you have a drive or V-Belt problem? Call us for Bull Dog V-Belts and a space saving, dependable, trouble-free installation.



Another Quality Product of

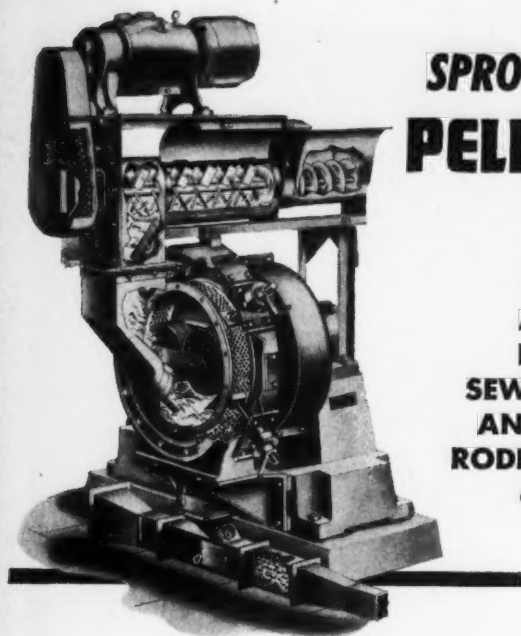
BOSTON WOVEN HOSE & RUBBER COMPANY

Warehouse Stock: 111 N. Canal St., Chicago, Illinois Distributors in all Principal Cities
PLANT: CAMBRIDGE, MASS. • P. O. BOX 1071, BOSTON 3, MASS., U.S.A.

When inquiring check CP 3181 on handy form, pgs. 2-3

PELLET YOUR PRODUCTS

PROMOTE YOUR PROFITS



with SPROUT-WALDRON PELLET MILLS

for
**CLAY
CARBON
ALUMINA
LITHARGE
SEWAGE SOLIDS
ANIMAL FEEDS
RODENT POISONS
etc., etc.**

The modern trend to pelleting is making great strides in the processing industries. Day after day, Sprout-Waldron's engineers are called upon to make recommendations on pelleting a great variety of products.

Pelleted products are easier to handle, easier to merchandise, easier to sell. They have less competition, bring a higher price—step up profits.

Pioneers in pelleting, Sprout-Waldron has the experience, know-how, and facilities to supply you with the finest pelleting equipment, engineered to your individual needs.

Consult with a S/W processing expert, or write today to Sprout, Waldron & Co., Inc., 10 Logan Street, Muncy, Pennsylvania.



SPROUT-WALDRON

The Best in PROCESSING EQUIPMENT Since 1866

137-A

When inquiring check CP 3182 on handy form, pgs. 2-3

SAFETY

**Weights half as much
as conventional
rubber glove . . .**

shoulder-length product offers protection against contamination

Uses: Although designed primarily for radioactive, chemical and bacteriological research work in dry-boxes, it is expected that glove will be adaptable to a wide range of other technical and industrial purposes, including manipulations where sensitivity, dexterity and chemical resistance are important.

Features: Glove weighs less than 6 ounces, or about half as much as conventional research gloves. Neutral thumb feature makes it unnecessary to order gloves in pairs and eliminates the leftover "odd glove."

Description: Thirty-eight inches long, this rubber research glove is designed with above mentioned neutral thumb which permits use of either the right or left hand in any of the drybox armports.

It is also designed to fit all average sized hands since more than one person may have to use the glove, and it



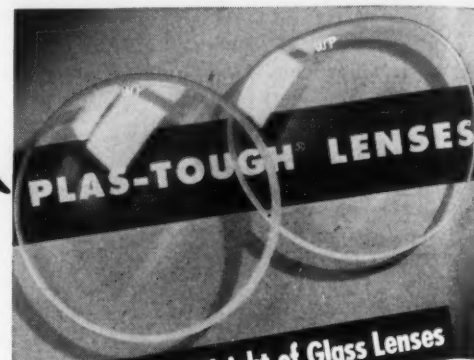
Using shoulder-length rubber gloves while diluting a solution of a radioactive isotope in a hermetically sealed drybox

is potentially unsafe to open the drybox to change gloves for each user.

Neoprene rubber used is thin gaged—fifteen thousandths of an inch, including tolerances—and this affords a high degree of sensitivity and dexterity. The thin film is non-porous and provides full protection against contamination.

(A product of Dewey and Almy Chemical Co., Dept. CP, 62 Whittemore Avenue, Cambridge 40, Massachusetts . . . or for more information check CP 3183 on handy form, pages 2 and 3.)

New WILLSON®



Only Half the Weight of Glass Lenses

- 6-Curve—50 mm. Round
- 6-Curve—P3 Drop Oval—44 and 47 mm.

Add extra comfort to your safety goggles and spectacles with these lightweight, extra tough plastic lenses. Improved surface hardness gives unusual resistance against pitting, scratches, abrasion and many industrial acids that would mar ordinary plastics. Plas-Tough® lenses meet Federal Specifications for impact resistance and light transmission. Replace with Plas-Tough®!

WILLSON PRODUCTS, INC.

227 Washington Street • Reading, Pa.

Write
for
Descriptive
Folder

When inquiring check CP 3184 on handy form, pgs. 2-3

**Glove Dollars Wisely Invested
Boost Your Profits**

**PIONEER
Stanzails®**



Fully protected by the *right* glove for the job, your workers work better and faster. It pays in higher production and profits. You lose money trying to fit one or two kinds of gloves to every job in your plant. PIONEER's new Stanzail catalog shows you how to buy the *right* glove for each operation. *Unbiased advice—Stanzails include all kinds of liquidtight gloves: all-neoprene, neoprene and vinyl-coated, 32 styles, weights, sizes. Make your glove dollars pay a dividend—write today for this Stanzail catalog!*

N-71 heavyweight all-neoprene, 18" length. For hand and arm protection.



Industrial Products Division

**The PIONEER
Rubber Company**

641 Tiffin Road • Willard, Ohio



OVER 30 Years OF QUALITY GLOVE MAKING

When inquiring check CP 3185 on handy form, pgs. 2-3

CHEMICAL PROCESSING

SAFETY

Dust and splash goggle is safe, yet provides ventilation . . .

acetate-butyrate eye-cups conform to contours of face areas for comfort

Uses: For prevention of eye injuries in chemical and other industries where splashing liquids and harmful dusts are handled.

Features: Two-piece construction permits circulation but prevents entrance of dust or splashing liquids. Individual eye-cups are fitted to the right and left areas of the face respectively, for easy wear while increasing safety factor by elimination of openings. Cups are unaffected by moisture or perspiration.



Safe, comfortable goggle guards against chemical burns

Description: Dust and splash goggle, Style No. 501, has eye-cups of acetate-butyrate. It is equipped with ball-chain nose bridge, with lever-type lock for adjustment. Sideshields and lens rings are of anodized aluminum. Lens may be easily changed and headband is adjustable.

(Product of Fendall Company, Dept. CP, 4631 N. Western Avenue, Chicago 25, Ill. . . . or for more information check CP 3186 on handy form, pages 2 and 3.)

Charged pocket comb can be detected at 10 feet . . .

detector makes it possible to locate dangerous static spots and check remedial measures

Uses: Sensitive electrometer reads like an ordinary voltmeter — can be used for very sensitive electrical measurements including static charge detection on moving parts, plastic and paper webs, etc.

Features: Sensitivity can be controlled and made directional. At high sensitivity, this instrument can easily detect the static charge on a pocket comb at a distance of ten feet. Of course no electrical connection is needed to the comb or other charged body.

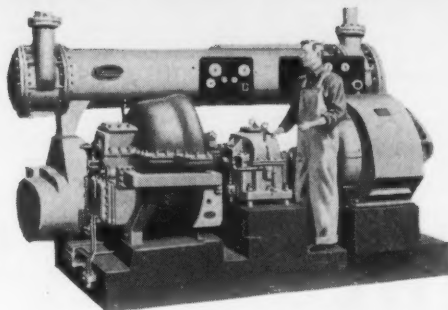
Description: Vacuum Tube Electrometers (described in CHEMICAL PROCESSING, Feb '52, p24, and Mar '52, p59) can be used alone or with manufacturer's Model 2005 Static Detector. Detector clips onto the electrometer and prevents overloading as well as aiding in locating the charge. It consists of two concentric tubes connected to guard ring and an aluminum rod connected to terminal.

Tubes shield the terminal so that charges along the cylinder axis have the most effect on reading. Sensitivity is varied by raising or lowering the inner tube. At highest sensitivity, it is possible to drive the needle off scale when the fully charged comb is held ten feet away. Results of measuring static charges, however, are qualitative even though actual detection consists of noting meter reading. Efficiency of static remedies can be checked by noting whether static has been eliminated.

Electrometer has extremely high input impedance and is calibrated in voltage scales of 0-2 and 0-8 volts.

(Development of Keithley Instruments, Dept. CP, 3868 Carnegie Ave., Cleveland 15, Ohio . . . or for more information check CP 3187 on handy form, pages 2 and 3.)

JUNE, 1952



Who's that behind Old Faithful?

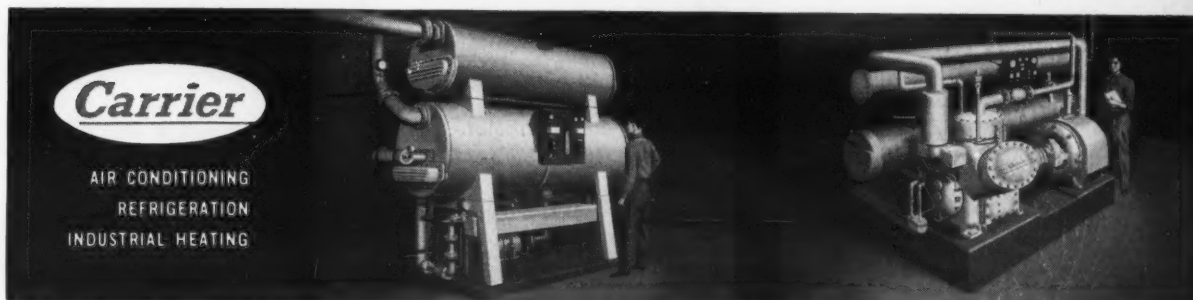
There's quite a line-up of experts behind the Old Faithful of refrigerating machines . . . the Carrier Centrifugal.

Carrier engineers designed this machine to be the kind that'll run without breakdown year after year. These Carrier engineers pioneered and developed centrifugal refrigeration in the first place, and they've perfected many engineering improvements which mean extra reliability on the job. An ingenious shaft seal, for instance — an automatic oil seal that has no metal-to-metal contact. Kingsbury thrust bearings and cupro-nickel tube-sheets are other reasons for the Carrier Centrifugal's amazing performance records.

Carrier craftsmen stand behind Old Faithful too. During the past 30 years they've built some 2500 of these multi-stage centrifugals — many more than anyone else in the business. Experience like that spells dependability.

And Carrier servicemen, part of the largest, most experienced national service organization in the industry, insure the reliability that's been engineered and built into each Carrier Centrifugal. Seldom called, these experts are at your service on a moment's notice.

Better get the whole story on the Carrier Centrifugal Refrigerating Machine. It's all in an informative catalog, "Centrifugal Refrigeration." Ask for a copy at the Carrier office nearest you, or write Carrier Corporation, Syracuse, New York.



The same reliability is yours in a Carrier Absorption Refrigerating Machine (left) which produces refrigeration from high-pressure or low-pressure steam or waste steam from other plant equipment; and in the packaged

Carrier Reciprocating Refrigerating Machine (right) which in many applications may be your most economical choice. Whatever your refrigeration requirements, there's a reliable Carrier machine to meet them.

When inquiring check CP 3188 on handy form, pgs. 2-3

WELDCO gives you

this TWIN GUIDE

to BETTER TUBING SERVICE

Dependability

Whenever you need reliable tubing, specify Weldco and be sure of getting the best. For Weldco is made by tubing specialists . . . men who have the equipment, facilities and experience to give you a product that's properly welded, carefully finished all the way through. For top-quality tubing, mechanically and metallurgically sound, you can always depend on Weldco.

Versatility

Youngstown Welding's plant facilities are geared to both large scale production and small quantities of odd-sized tubing. With this operating flexibility, we can produce a complete range of sizes—in the shortest possible time—to meet all your tubing needs. Weldco's versatility also gives you a choice of many different alloys—Stainless Steel, Monel, Inconel, Nickel, Cupro-Nickel, and Everdur, in sizes from 3½" to 30" O. D.

Send today for complete information on this corrosion-resistant tubing, and remember . . .

Whatever Your Needs In Tubing . . . You're Way Ahead With WELDCO

THE YOUNGSTOWN WELDING & ENGINEERING CO.
3714 OAKWOOD AVE. YOUNGSTOWN 9, OHIO

When inquiring check CP 3189 on handy form, pgs. 2-3

SAFETY

Extra valve protects gas masks in cold weather . . .

also prevents curling of valves by rubber solvents

Uses: To solve problem of frozen gas mask valves in sub-zero temperatures and eliminate valve corrosion.

Features: Equipment will still operate satisfactorily in temperatures



down to 50 degrees below zero Fahrenheit. Inner valve is not affected by action of rubber solvents.

Description: A secondary valve is provided that fits over the regular exhalation valve.

(Product of the Acme Protection Equipment Co., Dept. CP, 3037 West Lake Street, Chicago 12, Ill. . . . or for more information check CP 3190 on handy form, pages 2 and 3.)

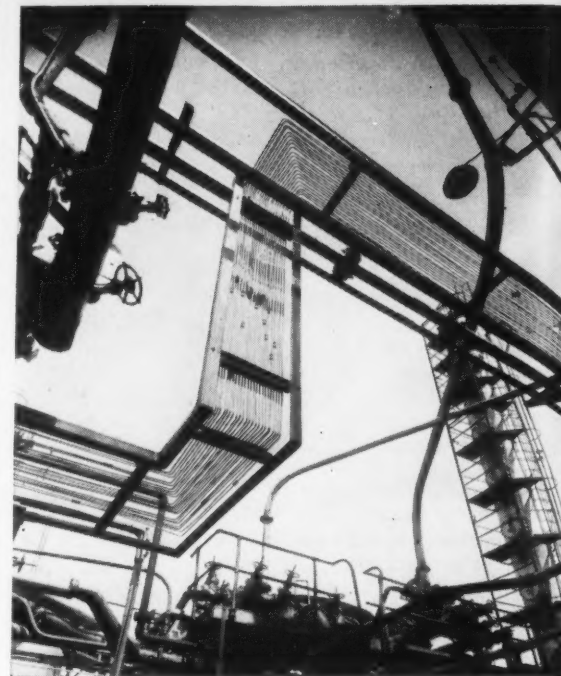
Handling ammonium dichromate

Twelve-page data sheet offers instructions for safe handling and use of ammonium dichromate. Physical and chemical properties of compound are given for information of personnel.

One section lists first aid measures, protective equipment, and precautions to be observed by workers in contact with the chemical.

Compound is classified by ICC as flammable solid and it will ignite if exposed to flames or sparks. At elevated temperatures, chemical decomposes and may react explosively with certain organic substances. Data sheet presents information about hazards to be anticipated in shipping, storage, and unloading containers of ammonium dichromate.

To obtain data sheet SD-45, remit 25c direct to Manufacturing Chemists' Association, Inc., Dept. CP, 15th and H. Sts., Washington 25, D. C.



SAVE up to 40% ON COILED TUBE!

Alcoa Utilitube, the all-purpose aluminum coiled tube, offers you savings up to 40 per cent over other corrosion-resistant metals. It is ideal for carrying air for instrument and brake lines—gasoline and fuel oil for internal combustion engines—lubricating oil for engines and machines—fluids for hydraulic systems.

Alcoa Utilitube bends more easily than annealed copper . . . work hardens less . . . has excellent forming and flaring characteristics. In petroleum service, it will not cause sludge or gum formations. It will not discolor or contaminate the fluid it carries. It safely resists corrosion by hundreds of hard-to-handle compounds and industrial atmospheres. In extremely low temperatures, it actually improves in mechanical properties.

And aluminum tube fittings are available from leading tube fitting distributors. For complete information, write for the new booklet, *Alcoa Utilitube*.

ALUMINUM COMPANY OF AMERICA
837-F Gulf Building • Pittsburgh 19, Pa.



When inquiring check CP 3191 on handy form, pgs. 2-3

CHEMICAL PROCESSING

SAFETY

Redesigned, meter can be placed on flat surface for continuous radiation monitoring . . .

three ranges can meter a top rate of 5000 mr/hr

Well known during the war, Cutie Pie has been used as a radiation hazard monitor. Recent redesign of the instrument overcomes one or two drawbacks of earlier models. Model 2585 is so designed that it can be set upright for continuous monitoring. It is light in weight, has its circuit and battery housing just ahead of the pistol grip instead of balancing above it. Five-position switch is located on top of the handle to allow one-hand operation.



Meter face slopes toward user for easy reading

Switch provides for setting to any of three ranges with a top metering capacity of 5000 milliroentgens per hour. Readings are made with the 2 1/2-inch meter mounted just above the switch. Meter face is sloped toward user for easy reading. Zero-adjust and calibration controls can be seen on top in photo. Weight of Cutie is three pounds, complete with batteries.

(Product of Nuclear Instrument & Chemical Corp., Dept. CP, 229 W. Erie St., Chicago 10, Ill. . . . or for more information check CP 3192 on handy form, pages 2 and 3.)

Accident rate in chem industry better than past years . . .

in 1951, lower than comparable figures for any industry except aircraft manufacturing

High standards of safety are continuing in the chemical industry, according to figures released by the Manufacturing Chemists' Association, Inc. For the first two months of 1952, the frequency rate of accidents among member companies was 3.86 per million man-hours of exposure. For all of 1951, with 654.8 million hours of exposure, accident frequency rate was 4.83.

Both figures reflect improvement over prior years, and according to records of the National Safety Council, they are lower than comparable figures for any industry except aircraft manufacturing. The Industrial Injury Reporting Service of MCA covers companies who manufacture more than 90% of the tonnage of chemicals produced in this country. Statistics given below are compiled according to American Standards Association methods.

	1949	1950	1951
Total exposure hours, millions	541.6	575.8	654.8
Total disabling injuries	2621	2630	3176
Total days charged, thousands	350.1	423.5	446.1
Frequency rate	4.84	4.56	4.83
Severity rate	0.65	0.73	0.68

(From Manufacturing Chemists' Association, Inc., Dept. CP, Woodward Bldg., Washington 5, D.C.)

JUNE, 1952

LET STAYNEW LIQUID FILTERS Solve Your Filtration Problems!

Bring your liquid filtration problems to Dollinger engineers. Their specialized experience is available in recommending the most efficient and economical equipment for filtering liquids in a wide range of viscosities, temperatures, acidities, alkalinities, pressures and capacities.

Staynew exclusive design, permits use of any medium in sheet form that can be crimped. Metal, plastic, fabric, ceramic and metallic mesh media can be used for super-fine filtration.

Write us today outlining your specific liquid filtration problem. From our 30 years experience in liquid filtration, we have built up a vast file of helpful information. Any part of this information is yours for the asking—no obligation.

Staynew Radial Fin Construction provides the largest possible filtering area for available space. Slip-On Insert—exclusive in Staynew Filters—permits simple, inexpensive cleaning or replacement of media.

Representatives in Principal Cities

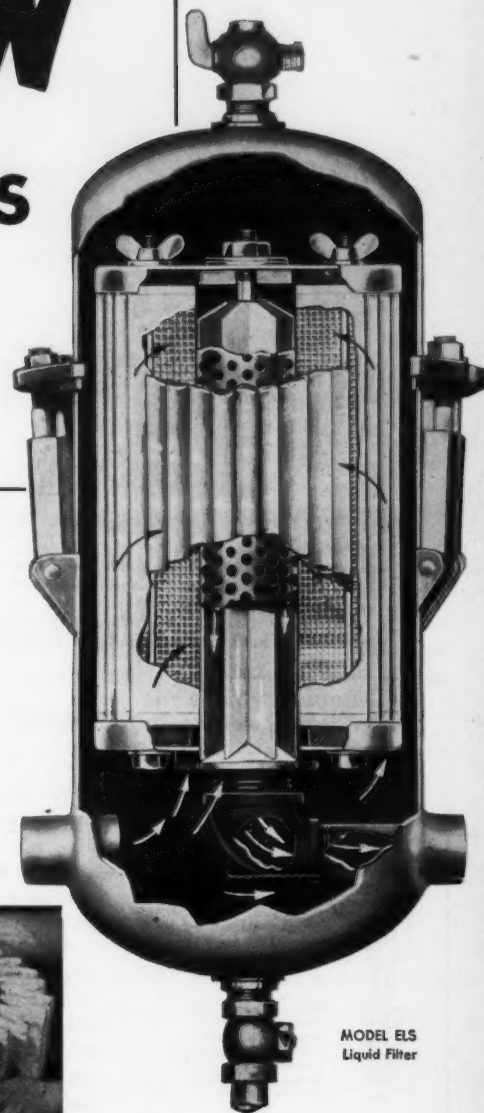


DOLLINGER

CORPORATION
69 Centre Pk., Rochester 3, N. Y.

ALL TYPES OF FILTERS FOR EVERY INDUSTRIAL NEED

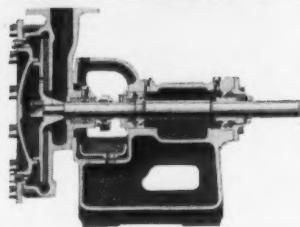
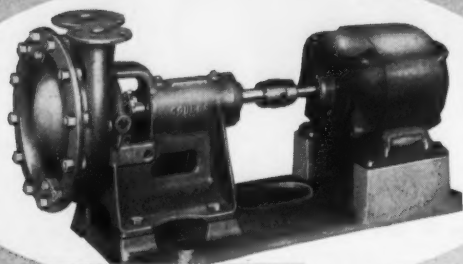
When inquiring check CP 3193 on handy form, pgs. 2-3



MODEL ELS
Liquid Filter



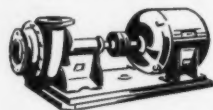
For economy in handling corrosive liquids...



With the stuffing box on suction side of impeller, pressure on it is limited to the suction head only, assuring long packing life and freedom from excessive leakage. Interior of pump can be inspected and cleaned and impeller can be removed or replaced without disturbing the piping.

**specify
GOULDS
stainless steel
centrifugal
PUMPS**

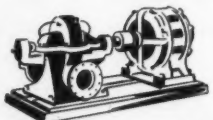
**Other GOULDS PUMPS
for processing plants**



This highly efficient Goulds single stage centrifugal pump (Fig. 3169) is well suited for general processing purposes. Ten sizes.



Nonclogging impeller of this vertical sump pump (3047) will handle water containing large solids or fibrous materials.



For capacities up to 15,000 G.P.M. Heads up to 500 ft. Check the specifications of this Goulds ball bearing double suction centrifugal (3450).



PUMPS INC.
Goulds
Seneca Falls
New York

When inquiring check CP 3194 on handy form, pgs. 2-3

SAFETY

**Extinguisher is portable
and easily recharged
in the field...**

dry chemical unit is for class B and class C fires

Uses: Discharges cloud-like pattern which is most effective for extinguishing class B (flammable liquid) and class C (electrical) fires.

Features: Portable unit may be serviced by simply pouring 5 lb of dry chemical into powder chamber and



Pressure gage is located in handle of extinguisher

charging the unit with 150 lb of compressed air. Air pressure may be taken from gas station or factory air line.

Description: Unit has trigger-type finger control and its wall bracket has quick-release type latch. Gage to show pressure carried by extinguisher is built into unit's handle. Weighs ten lb fully loaded, stands 15" high, and is 4 1/2" in diameter.

Extinguisher has range of five to seven feet. Cloud pattern eliminates possibility of splashing burning substances as result of too forceful discharge stream.

(Product of Walter Kidde & Company, Inc., Dept. CP, Belleville 9, N. J. . . or for more information check CP 3195 on handy form, pages 2 and 3.)

**Overhead guard protects
fork truck driver**

Two-page data sheet describes overhead guard to protect operator of fork lift trucks. Accessory is constructed of 1 1/2 and 2" steel pipe and is recommended for all trucks with lift exceeding 144". Data Sheet AD-5 is issued by Towmotor Corporation, Dept. CP, 1226 E. 152nd St., Cleveland 10, Ohio. When inquiring specify CP 3196 on handy form, pages 2 and 3.



**Ventilate
CONFINED Places
with
Vano Design "C"
Ventilator-Exhauster**

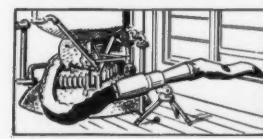
Ideal for withdrawing welding fumes from confined places or directly from the welding rod. Provides greater safety, greater comfort for workers . . . leads to greater work efficiency. Can be furnished with 8" suction inlet to which 8" non-collapsible suction tubing may be attached . . . or provided with multiple inlet nozzles for 5", 4" and 3" suction hose.

Other types are also available for supplying fresh air to men working in confined places, such as tanks, manholes, drums, boilers and ship-holds.

Coppus Engineering Corporation
386 Park Ave.
Worcester 2, Mass.



WELDING FUMES are here removed by this Vano Ventilator-Exhauster.



FUMES FROM A REACTOR KETTLE are here withdrawn by tripod-mounted Vano Ventilator-Exhauster. Note non-collapsible suction tubing and discharge tubing.

ANOTHER
COPPUS
"BLUE RIBBON" PRODUCT

When inquiring check CP 3197 on handy form, pgs. 2-3



You are **SURE** of instant, unfailing safeguards when you install **EVERLASTING VALVES** with Pendulum. Stop on your fire protection system. The valve action is immediate and positive . . . the flow is full and unimpeded . . . there's no danger of sticking, binding or wedging. Made in all sizes from 1 in. to 8 in. and may be arranged for control from any location. Write for Bulletin E-52C describing these valves in detail.

EVERLASTING VALVE CO., 49 Fisk St., Jersey City 5, N. J.

Trade-Mark "EVERLASTING"—Reg. U. S. Pat. Off.

**Everlasting
Valves**
FOR EVERLASTING
PROTECTION

When inquiring check CP 3198 on handy form, pgs. 2-3

CHEMICAL PROCESSING

SAFETY

Compact detectors protect workers against harmful vapors of mercury . . .

both electronic and chemical instruments are lightweight and extremely sensitive

Uses: For indicating concentrations of mercury which could be harmful to industry or laboratory workers.

Features: Redesigned instruments of earlier models, the compact detectors are available in either electronic or chemical types. Accuracy for determination with the electronic detector is within \pm five percent, while the chemical detector will indicate as little as 0.10 mgm of mercury per cu ft or air in two hours — the toxic limit for continual breathing of mercury vapor as established by the American Standards Association.

Description: Electronic instrument is designed to give an instantaneous indication of mercury vapor by resonant absorption of ultraviolet energy and will give quick readings, ranging from 0.01 to 3.0 mgm of mercury per cubic meter of air, with greater operational stability, independent of line voltage. An additional photo tube in a bridge circuit measures the visible light and maintains the bridge balance despite any variations in line voltage.

The chemical mercury vapor detector operates on the principle that activated selenium sulfide, when it is deposited upon a thin sheet of paper, will darken in the presence of mercury.

It is designed for continuous monitoring. Housed in a small steel cabinet, the model has an increased sensitivity factor of approximately four. Accuracy of determination is accomplished by use of a thermoswitch and heater which holds the air sample constant. A blower is used to obtain a constant, positive air flow over the indicator paper.

(Manufactured by the Special Products Division, the General Electric Company, Dept. CP, Schenectady 5, N. Y. . . or for more information check CP 3199 on handy form, pages 2 and 3.)

Guards against allergic rashes in handling solvents, oils, metals, etc . . .

antiseptic and anti-histaminic properties credited to lotion; aids healing of minor scratches

Uses: To prevent allergic or sensitization skin rashes in handling metals, lacquers, plastics, solvents, cutting oils, and other sensitizing materials. It is also said to aid healing of minor scratches and abrasions.

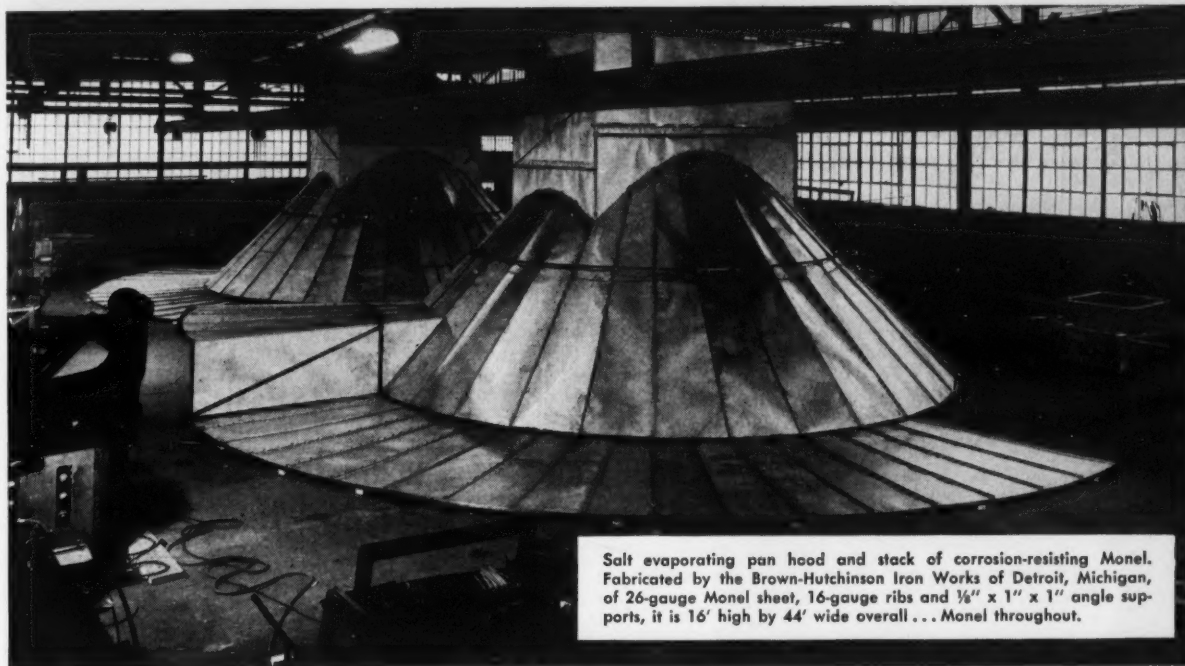
Features: Combines antiseptic and anti-histaminic properties.

Description: Active germicidal agent in Vanfaire Lotion is a mixture of high molecular alkyl-dimethylbenzyl-ammonium chlorides, 1:4000. Anti-histaminic component is pyranisamine maleate, 0.5%. These are combined with extractives from lanolin and sesame oil in an inert colloidal gel with d-sorbitol as a humectant and surface-active organics such as polyethylene glycols.

The lotion is available in gallons for dispenser use, small bottles for individual use. It dries quickly upon application and leaves an invisible protective film which is non-sticky and non-greasy. Film is water-soluble and readily removed with ordinary washing.

(A product of Vanfaire Products, Dept. CP, 3757 Wilshire Blvd., Los Angeles 5, Calif. . . or for more information check CP 3200 on handy form, pages 2 and 3.)

JUNE, 1952



Salt evaporating pan hood and stack of corrosion-resisting Monel. Fabricated by the Brown-Hutchinson Iron Works of Detroit, Michigan, of 26-gauge Monel sheet, 16-gauge ribs and $\frac{1}{4}$ " x 1" x 1" angle supports, it is 16' high by 44' wide overall . . . Monel throughout.

Protecting product purity with MONEL

Is corrosion putting the bite on your equipment?

Is it endangering your product purity?

Then you'll be interested in this experience of a large midwestern company.

Producing highly refined salt for the food processing industry, they needed a special material for new brine evaporating pan hoods.

They needed a material that was highly resistant to corrosion . . . because . . . corrosive salt vapors condensing on a non-resistant hood would carry heavy metal impurities back into the slurry, thus contaminating the salt.

And they needed a material that had special fabrication features. It had to have the same high corrosion resistance in weld areas as in the sheet itself.

These requirements, plus their experience with Monel® in heat exchangers, dryers, and conveyors, led them to select Monel again.

They now have four hood assemblies in use, giving excellent service in the production of a high quality salt . . . thanks to Monel.

* * *

So, if you are bothered by corrosion or have difficulty maintaining purity of product, perhaps Monel offers you a solution, too. Consult our technical staff. They will be glad to help you. Just write giving full details.

Remember, however, that because Nickel and Nickel Alloys like Monel are on extended delivery, it will pay you to anticipate your needs. Order well in advance giving necessary NPA rating and complete end-use information.

THE INTERNATIONAL NICKEL COMPANY, INC.

67 Wall Street, New York 5, N. Y.

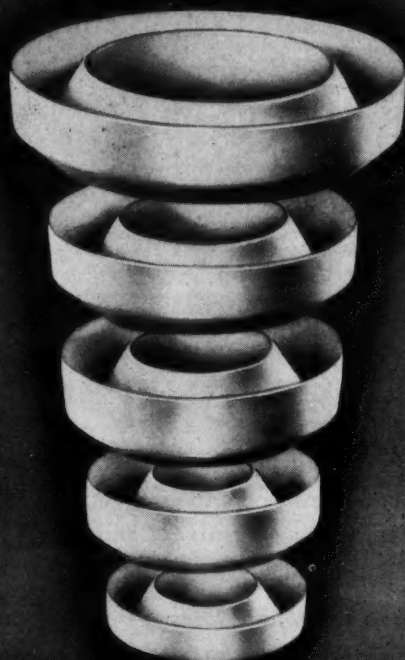
MONEL® • "R"® MONEL • "K"® MONEL • "KR"® MONEL • "S"® MONEL
NICKEL • LOW CARBON NICKEL • DURANICKEL®
INCONEL® • INCONEL "X"® • INCOLOY® • NIMONICS

Nickel  Alloys

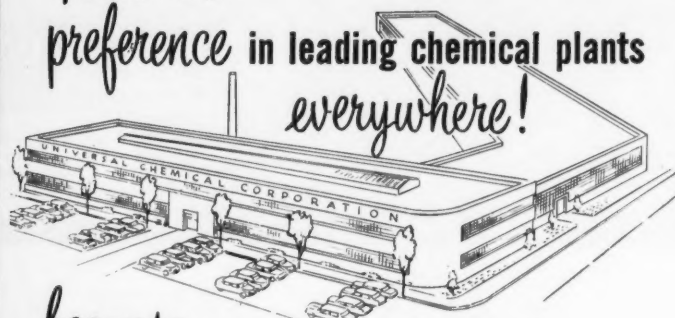
When inquiring check CP 3201 on handy form, pgs. 2-3

JOHN CRANE

TEFLON "C-V" rings



First in
preference in leading chemical plants
everywhere!



because... Teflon "C-V" Rings withstand

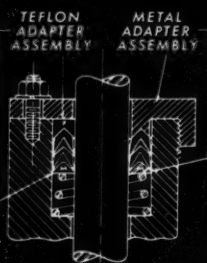
1. Temperature from -94°F. to 482°F.
2. Any corrosive liquid or gas

Why repack with ordinary materials when chemically inert "John Crane" Teflon "C-V" Rings can seal any corrosive liquid or gas and resist extreme temperatures? Also, they have extremely low friction characteristics—will not shrink, swell, harden, dissolve, corrode or deteriorate. Ideal for use on all valve stems and reciprocating pumps as well as many centrifugal and rotary pump applications. Cross-section design allows effective sealing at finger tight gland pressure.

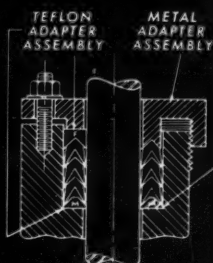
"John Crane" has developed a complete line of standard size Teflon "C-V" Rings and male and female adapter rings to meet practically every need. If you have special requirements, "John Crane" can mold additional sizes to fit your stuffing box requirements.

SEND FOR NEW CATALOG

This illustrated booklet "The Best in Teflon", contains everything you want to know about the many kinds of Teflon products made by "John Crane". Write today for your free copy.

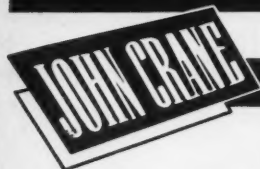


SPRING ASSEMBLY



SOLID ASSEMBLY

"John Crane" Teflon "C-V" Rings are used in sets, the number of rings depending upon the stuffing box length and pressure encountered. In all cases, a minimum of two rings are recommended for a stuffing box, together with male and female adapters.



CRANE PACKING COMPANY
1821 CUYLER AVENUE • CHICAGO 13, ILLINOIS

When inquiring check CP 3202 on handy form, pgs. 2-3

Briefs . . .

Preventative maintenance in chemical industry

Author discusses "the system which fixes it before it breaks" as related to: reduction of personal hazards, reduced down-time and reduction of direct maintenance costs. Tells the ways to discover sources of high maintenance costs. Gives examples of procedures and records to locate spots where high maintenance costs occur and how to reduce them. 4 pages, 3 figures. ("Chemical Engineering Progress," April 1952, page 161)

Synthesis and physical properties of 2,2,4-trimethylpentane and n-heptane

Author reviews methods used in synthesizing these two compounds and in purifying them. Objective: Their use as standards in the certification of primary reference fuels for standard samples in the comparison of precision heat-capacity calorimeters. 6 pages, 6 tables, 4 figures. ("Journal of Research of the National Bureau of Standards," January 1952, page 76)

Thermal insulation for industrial requirements, part III

Concludes discussion of this topic with the present paper dealing specifically with means of securing the wanted material and how to apply it most satisfactorily. Illustrations show methods for some of the more difficult applications. 6 pages, 11 figures. ("Petroleum Refiner," March 1952, page 143)

Analysis of technical pentachlorophenol

Use of pentachlorophenol as a wood preservative, fungicide, herbicide, or defoliant raises the necessity for its accurate determination. Reason is that there are laws covering sale, labeling, and uses. Method described makes it possible to identify and quantitatively determine phenolic compounds which are too closely related structurally for ordinary chemical methods. $3\frac{1}{2}$ pages, 7 tables, 3 figures. ("Analytical Chemistry," December 1951, page 1760)

Markets for chemicals

Paper limited to a consideration of the Far West. Such major economic factors as population, personal income, manufacturing, agriculture, and mining are tabulated for the area and also, as a percentage of US Chemical consumption by major chemical-consuming industries tabulated for 1950. Partial breakdowns for 15 major chemical-consuming industries of area tabulated. 5 pages, 5 tables, 1 figure. ("Industrial & Engineering Chemistry," December 1951, page 2673)

Corrosion-resistant coatings of chlorinated rubber

According to authors, "the past fifteen years have shown that chlorinated rubber is an outstanding film-forming material from which corrosion-resistant coatings may be formulated." Importance of correct formulation is stressed and comments are made on some formulations which are believed to be superior. Numerous case histories are pre-

CHEMICAL PROCESSING

from contemporary publications

Here's a quick look at interesting articles, appearing in other publications . . . as selected by Technical Editor, H. McCormack

sented in the industrial fields of acid plants, water works, paper mills, sewage disposal plants, and in the protection of concrete construction. Affords reasonably good protection over many types of undercoats or over poorly prepared surfaces. Can be sprayed or brushed on. 10 pages, 26 figures, 4 tables and discussion. ("Corrosion," April 1952, page 130)

Radio frequency drying

The process is related to required electrical characteristics and properties of the materials to be dried. Examples of application include drying pottery, rayon filaments, and penicillin. Other examples are laboratory applications. Economics of the operation are presented on the basis of certain assumption. 9 pages (5 of which are discussion), 10 figures. ("Trans. Institution of Chemical Engineering, London," Volume 27-49, page 37)

Measurement of residual stress in plastics

A method is described by which the stresses remaining in thermosetting plastics may be recognized and measured. Necessary equipment is described along with the techniques essential for measuring the stresses. 5 pages, 15 figures. ("ASTM Bulletin," April 1952, page 54)

Organic arsenical insecticide

Tells the story of a new insecticide; lists physical and chemical properties. Tabulates data as to toxicity as tested on various insects. Another table shows maximum concentration at which insecticide has been applied on various crops without plant injury and minimum concentration which showed plant injury. 2½ pages, 4 tables. ("Agricultural Chemicals," April 1952, page 52)

Care and maintenance of rubber conveyor belt

Article tells about the things which will make rubber conveyor belting last and give better service. Negative side presented by illustrations of things which are harmful. Much of story is told pictorially. 7 pages, 11 photos. ("Flow," April 1952, page 74)

Absolute viscosity of water at 20° C

Paper discusses desirability of having a most reliable basis for viscosity measurements. Comments on the work done in the twenty year period from the inception to the completion of this work. Apparatus and methods finally adopted are described. Change in the accepted value for water viscosity is recommended and new value will be used by the Bureau of Standards after July 1, 1952. 31 pages, 36 tables, 6 figures. ("Journal of Research of the National Bureau of Standards," January 1952, page 1)

JUNE, 1952

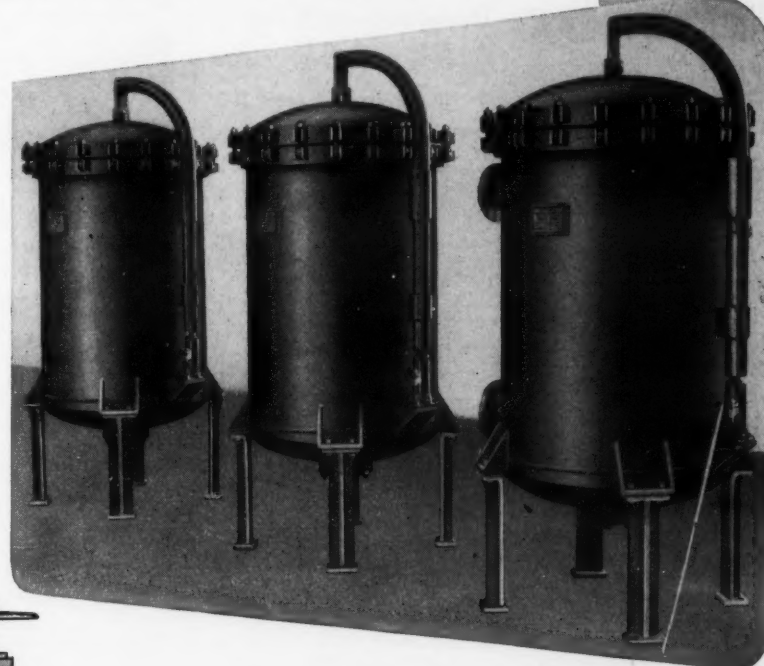
non-stop filtration

with **ADAMS PORO-STONE TEAM**

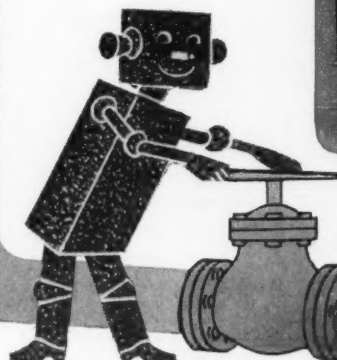
● Whether you choose the open filter aid precoat tank or the closed filter aid precoat system, the Adams Poro-Stone team takes your process liquids around the clock—week in and week out.

Complete package installations, ready to go on stream virtually at delivery, allow one filter to be drained, flushed clean, and precoated while the balance of the battery is in continuous service.

If cleaning or replacing clogged filter media stands in the way of making your process continuous, investigate Adams Poro-Stone CVF filters. They are available, with or without davit and swing bolts, in capacities and materials to suit most needs.



Bulletin 430 illustrates both manual and automatic operation.



Write

243 E. PARK DRIVE, BUFFALO 17, N. Y.

R. P. ADAMS CO., INC.

When inquiring check CP 3203 on handy form, pgs. 2-3



It's
NEW!

It's
FAST! TOLEDO SPEEDWEIGH[®]
OVER-UNDER SCALES

Here's new speed with accuracy for you in check weighing, packaging, many other operations today... 3 sizes—to 5 lb., to 20 lb., to 50 lb.! Shadowfree wide-angle reading... accurate to 1/64 of an ounce... new improved knife-edge check link system... exclusive "coined" bearings for greater accuracy, longer life... stainless steel beam... enclosed levers in one-piece housing... choice of platters and scoops... many more plus features! Write for bulletin 1416. Toledo Scale Company, Toledo 1, Ohio.

TOLEDO[®] Headquarters for SCALES

When inquiring check CP 3204 on handy form, pgs. 2-3



Left—
Union Special
Style 20100 H
Bag Closing
Machine

Here's how
to close
**MULTIWALL
PAPER
BAGS**

FOR lower production costs... stronger, neater closures... ability to get out rush orders in a hurry, you can't beat Union Special Bag Closing Machines! Specially built to stand up under heavy production schedules, these machines provide the high output rates needed to meet modern competitive conditions.

In the Union Special line, it's easy to find the right unit to meet your particular requirements. ASK FOR RECOMMENDATIONS.



SEND FOR THIS BULLETIN!

Get your copy of this 16 page illustrated bulletin containing helpful data and charts on the complete Union Special line of bag closing machines. UNION SPECIAL MACHINE CO., 442 North Franklin Street, Chicago 10, Illinois

UNION SPECIAL

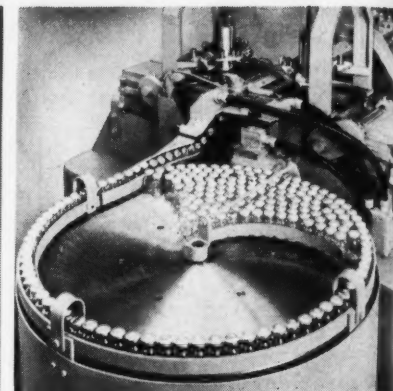
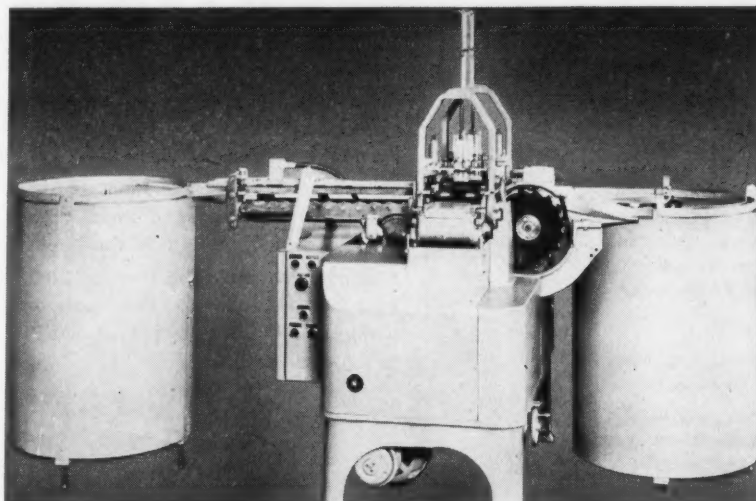
When inquiring check CP 3205 on handy form, pgs. 2-3

Page 140

Packaging

Designed Especially for Small Containers Labeler Turns Out 90 to 180 per Minute

Applies body labels, front-and-back, or wrap arounds



Close up shows details of the feed end of labeler

Handles cylindrical containers as small as 5/16-inch diam

VIALS and small containers for fine chemicals and similar products can be conveniently labeled in production quantities on the Model B Labeling Machine. Labeler takes advantage of the cylindrical shape of the containers in handling them at rates from 90 to 180 per minute.

Smallest container which the labeling machine is designed for has a 5/16-inch diameter. Postage stamp size labels are affixed to these. It also applies body wrap-around labels at the same rate. Steady operation is obtained through electrical control.

No label can be picked up unless there is a container

there to receive it. Container travel governs label application, too, so that registration is assured.

When labeler is started up, labels are not applied until the adhesive has reached the proper consistency. On stopping, the label picker and transfer pad are automatically cleared and the machine comes to rest at the correct position for starting again.

(Economic Machinery Division, George J. Meyer Manufacturing Co., Dept. CP, Worcester, Mass. is the maker... or for more information check CP 3206 on handy form, pages 2 and 3.)

Filling odd-shaped containers is done speedily with special conveyor...

adaptors hold irregular containers firmly and eliminate possibilities of spilling

Uses: For production filling of odd-shaped containers that will not remain upright on conventional conveyor lines.

Features: Specially designed adaptors spaced over the entire length of the conveyor firmly hold containers in place while filling, capping, insertion of plugs, and code date. Since containers are evenly spaced and synchronized, operations are done automatically.

Description: Fully automatic 12-spout rotary filler

shown in photo is a gravity type, but it could be a vacuum filler if required. Special filling nozzles were designed incorporating a centering device that firmly grips the container prior to filling, thereby assuring accuracy in fill.

An integral supply tank and a float control are supplied with the machine. Driving mechanism is totally enclosed in a stainless steel cabinet in front of the machine, mounted above the floor to prevent dirt and foreign matter from accumulating. Quick cleaning, minimum of maintenance are other features. No skilled help is required to operate or maintain the machine.

One user reports filling 175 small polyethylene containers with deodorant at a rate of 175 per minute; manufacturer reports that fillers can be supplied with

CHEMICAL PROCESSING

PROTECTION

built in

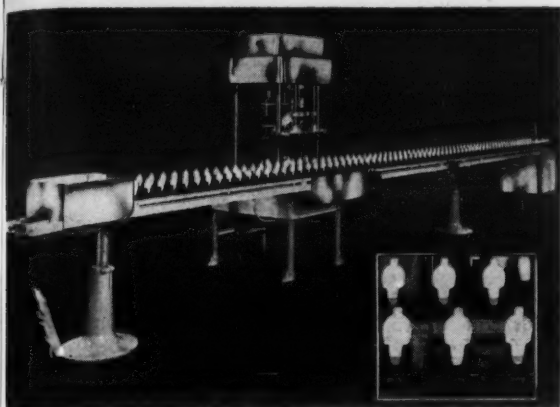
Tough as a Rhino's hide! **Fulton's W.P.P.L. (Waterproof Paper Lined) Bag** is a reinforced textile bag that is doing the job of more expensive containers. It is designed especially for products that require protection inside and out. Tough paper or plastic linings are laminated with special adhesives to either cotton or burlap to give your product extra protection from moisture absorption, evaporation, or contamination from other outside influences. Maybe this is the package you've been looking for—write for full particulars.



Fulton BAG & COTTON MILLS

Atlanta • St. Louis • Dallas • Denver • Kansas City, Kans. • New Orleans • Los Angeles • Minneapolis • New York City

When inquiring check CP 3209 on handy form, pgs. 2-3



Makes easy work of tiling odd-shaped containers

speeds to 350 per minute, in any length conveyor, depending on number of operations required after filling.

(Development of MRM Company, Inc., Dept. CP, 191 Berry St., Brooklyn, N. Y. . . . or for more information check CP 3207 on handy form, pages 2 and 3.)

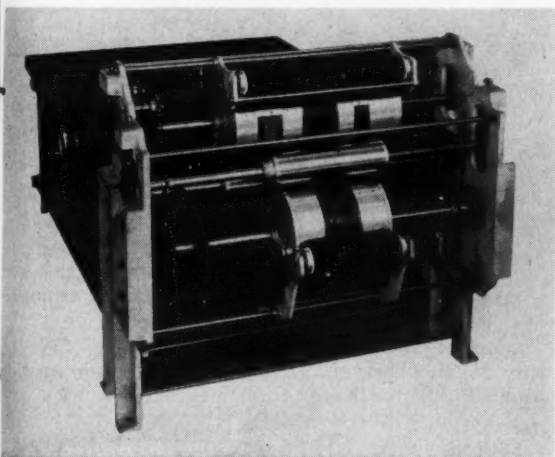
No make-ready required in printing knocked-down cartons at 1500 per hr . . .

complete info can be given on all sides of corrugated boxes simultaneously

Uses: For printing product information, coding, and mail data on corrugated boxes.

Features: With speed of up to 1500 cases per hour, printing machine puts complete information on all sides of knocked-down cartons simultaneously, requires no make-ready since rubber type or mats are used.

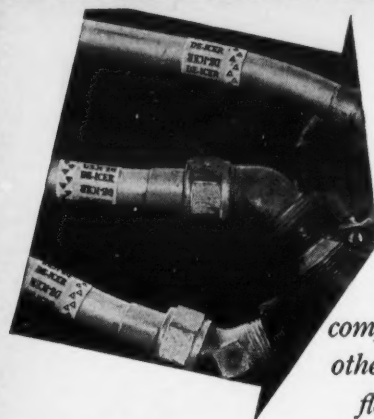
Description: Device uses a quick-drying, non-caking ink that need not be cleaned from type or roller after using. Built-in internal ink reservoir assures thousands of impressions without re-inking. Side rails are adjustable for various sizes of containers. Container thickness is



Makes possible printing all sides of containers simultaneously

compensated by spring-loaded pressure rollers. Indexing arm on drum centers impression. Drums made to provide space for multiple marking to identify contents, date of packing, mark addresses, protect against pilferage.

(Development of The Industrial Marking Equipment Co., Dept. CP, 454 Baltic St., Brooklyn 17, N. Y. . . . or for more information check CP 3208 on handy form, pages 2 and 3.)



**new...
efficient
method of
marking
fuel, oil,
gas, hydraulic,
water, oxygen,
compressed gas and
other industrial
flow lines**

Speed production, maintenance and repair operations with E-Z Code Fluid Line Markers. Extensively used in the aviation industry, E-Z Codes are now being used as flow-line markers in many industrial applications.

E-Z Codes are pressure-sensitive and are applied without moistening with fingertip pressure. They will not pop, peel or curl even in extreme changes of heat and humidity. They are available in standard symbols and codes for all types of flow-lines. They conform to the new international AND-10375 as well as AAF-27643 and can be produced to your size and printing specifications. Learn the facts on E-Z Code Fluid Line Markers.

SEND FOR SAMPLES AND DETAILS

**E-Z CODE SELF-ADHESIVE
MARKERS**

Western Lithograph Co., Dept. CP-6, 600 E. Second Street,
Los Angeles 54, Calif., Box 3804, St. Louis 22, Mo.

When inquiring check CP 3210 on handy form, pgs. 2-3

Ship Chemicals? Use NORCO Barrels and Kegs



NORCO PACKAGES

Have definite advantages as containers for many hard-to-hold liquids, foods and chemical products. Micro-crystalline and other linings are available.

- Tight grained and non-porous.
- They are "stable"—minimum of shrinkage or swelling.
- They stand up unusually well in storage.
- Low tare weight.

Typical Usages: Phosphoric, acetic, sodium acetate and acid solutions.
In these sizes: 5, 10, 15, 30 and 50 gallon.
Most sizes are available in I.C.C. Specifications.

Write for Unit NC 3 CP.
PUT YOUR PRODUCT IN SANITARY WOODEN BARRELS
Manufacturers of the largest variety of
wooden barrels and kegs in America.

NORTHERN COOPERAGE CO.

551 Concord St. — St. Paul 7, Minn.
Riverview 4900
Division of Grefl Bros. Cooperage Corp.

124

When inquiring check CP 3212 on handy form, pgs. 2-3

CUT CLOSING COSTS

with the Economical and Efficient...

- Requires no installation, supports or plant space... merely plug into any electrical outlet



- Entirely portable... weighs only 10½ pounds

- Unconditionally guaranteed

- Handles all types of textile bags and most paper bags

- Economical to use... economical to buy!

**FISCHBEIN
Portable
BAG CLOSER**

Lightweight, practical, handy, easy to operate! Efficiency and reliability proved by over 4000 users in every part of the world under varying operating conditions. For details on how YOU can cut YOUR Bag Closing costs with the FISCHBEIN Portable BAG CLOSER... write:

DAVE FISCHBEIN CO.
Industrial Sewing Machinery

DEPT. 9B 38 GLENWOOD AVE.
MINNEAPOLIS 3, MINN.

When inquiring check CP 3211 on handy form, pgs. 2-3

PACKAGING

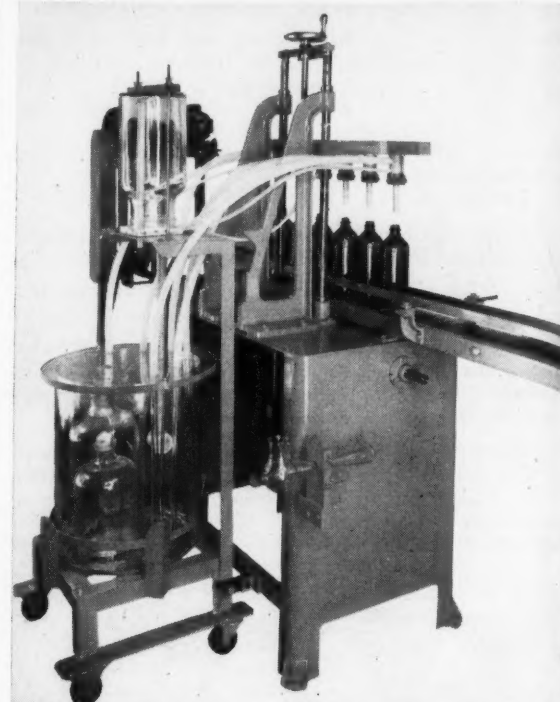
**Special materials are used
to halt impurities in
acid filling...**

using vacuum principle, machine fills bottles ranging in size up to five pints capacity

Uses: Semi-automatic liquid filling machine intended for filling CP grade acids.

Features: Special materials—teflon, polyethylene, pyrex glass—have been utilized in handling highly corrosive acids and to avoid contamination of liquids. Rated fill on five-pint bottles is established conservatively as two fills per spout per min. Vacuum for operation is created by use of pyrex glass steam-air jet pump.

Description: Machine is specially designed to handle such acids as: hydrochloric, nitric, and sulfuric, in addition to



Liquid filling machine handles highly corrosive acids

tion to CP alkalis such as ammonium hydroxide. Acid bottles are fed into the filling machine by means of a stainless steel conveyor actuated by an operating lever raising or lowering the spout bar for filling into the acid bottles. Motors are furnished totally enclosed or explosion proof.

(Product of The MRM Company, Inc., Dept. CP, 191 Berry St., Brooklyn, N. Y. . . . or for more information, check CP 3213 on handy form, pages 2 and 3.)

Describes various applications of humidity conditioning

Eight-page bulletin presents several applications of humidity conditioning equipment. Case histories cover dehumidifying operations in manufacture of laminated safety glass, pharmaceutical processing, storage of moisture sensitive products, and packaging of hygroscopic powder. Mention is made of 17 industries and 43 business and manufacturing firms which utilize this humidity conditioning equipment. Bulletin is composed of

CHEMICAL PROCESSING

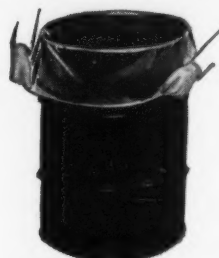
Polyethylene Plastic

DRUM LINERS

by

MEHL

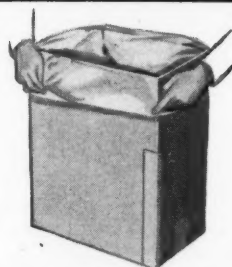
Spectacular economies are effected through these new methods of shipping bulk chemicals. Minimum waste . . . eliminate re-cleaning cost . . . provide top protection for your valuable products.



STEEL DRUM LINER



FIBRE DRUM LINER



BOX LINER

Write, wire or phone us concerning your particular problems.

MEHL MFG. CO.

Phone: Cherry 6430 • 2059 READING ROAD
CINCINNATI 2, OHIO



When inquiring check CP 3214 on handy form, pgs. 2-3

PACKAGING

of six advertisements describing various applications of the equipment.

Bul K-152 is issued by Surface Combustion Corporation, Dept. CP, Toledo 1, Ohio. When inquiring specify CP 3215 on handy form, pages 2 and 3.

Drum leak detector enclosed in metal cabinet is compact and convenient . . .

cabinet rests on roller casters for easy movement to testing areas

Uses: For testing 5, 30, and 55 gal drums of head or side filler type for leaks. With fill plug adapters available, other size containers can also be checked.

Features: Machine is enclosed in well constructed metal cabinet. Pressure gages, pilot lights, and operating switch buttons are located on sloping top within easy reach and sight of operator. Cabinet is compact and mounting on roller casters makes it movable without difficulty.

Description: With leak detector each container is tested for a predetermined automatic time cycle. Time can be varied from 10 to 60 seconds by a hand adjust-



Leak detector checking head-filling drum

ment. Each unit is factory set at 45 sec to conform with specifications of Bureau of Explosives. At this setting max production is 60 drums per hour.

Standard unit weighs 125 lb and is 48" high by 15" wide by 15" long. Air consumption required for 55 gal drums is 10.5 cfm. Machine requires power source of 110 volts, single phase, although transformer for other electrical characteristics can be furnished. Explosion-proof construction is optional.

(Product of Drum Equipment Corporation, Dept. CP, 947 Lehigh Ave., Union, New Jersey . . . or for more information check CP 3216 on handy form, pages 2 & 3.)

**NO. 2
OF A SERIES
ON HOW TO**

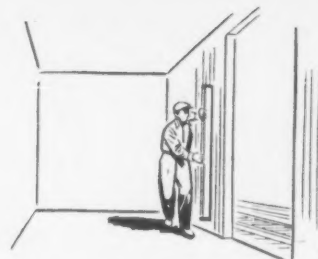
**Stretch a
MULTIWALL
Paper Bag**

It is just good business to get the best possible use from your multiwalls. Here is one way to do it . . .

PROPER CAR LOADING

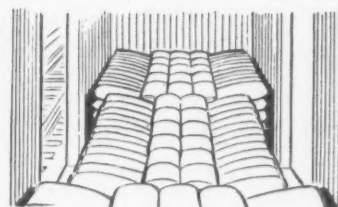
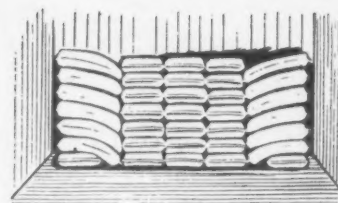
PREPARATION IS IMPORTANT

Cars should be clean, dry, and free from protruding nails or other projections. Remove all dirt, dust, rocks and grit. Remove loose nails and cover loose bolts with cardboard or several thicknesses of car liner. (Picture shows how to use straight-edge board to locate protruding nails, etc.). Cover floor (and walls, if necessary) with good grade of car liner and put at least three thicknesses on door edges. Use asphalt-laminated paper to seal door cracks.



FOLLOW THESE LOADING RULES:

- 1 The car should be loaded so that the filled bags will not come in contact with side doors. **a.** Use a good grade of dunnage in the doorway or steel strapping covered with corrugated board. **b.** Follow proper loading patterns. (Illustrated.) **c.** Use retaining strips of special Scotch tape applied across the load, or steel retaining straps covered by one thickness of corrugated board.
- 2 Bags should be loaded tightly, solidly and flat, to minimize shifting.
- 3 Balance the load from end to end and side to side. There are, in general, three loading methods—crosswise, brickwall and lengthwise. Crosswise is generally preferred. Loading in car doorways should be done so that this part of the load acts as a keystone between the end loads. (See illustration.)



Want the Whole Story?

Ask your Bemis Man for free, illustrated copy of Bemis Multiwall Packaging Guide. It deals with Storage, Filling and Closing, Handling, Palletizing and other important subjects.

If you need cotton or burlap bags also, Bemis is your best source.

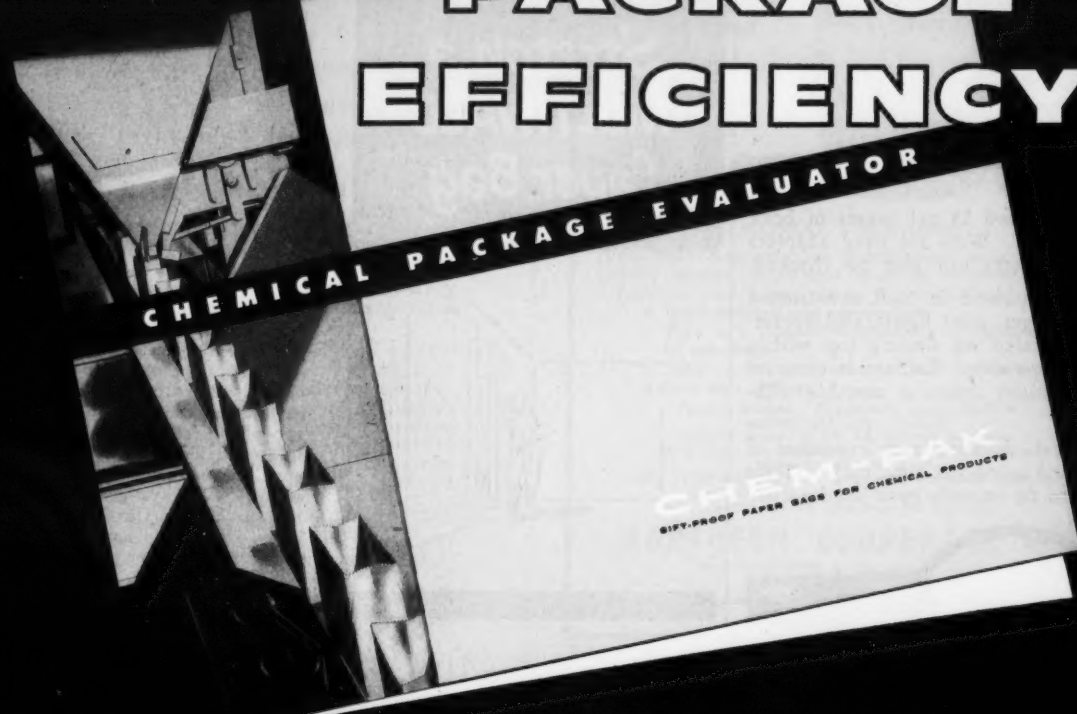
Bemis



St. Louis 2, Missouri

When inquiring check CP 3217 on handy form, pgs. 2-3

NEW WAY TO CHECK PACKAGE EFFICIENCY



IF YOUR BUSINESS IS DRY CHEMICALS,
THESE PRACTICAL NEW CHECKLISTS CAN
HELP YOU DO A BETTER PACKAGING JOB

WITH UNION'S new *Chemical Package Evaluator*, you can take a rough but usually accurate measure of your container's efficiency.

THIS HANDY "packaging scorecard" may help you crystalize weaknesses which are adding unnecessary expense to your production and distribution costs.

It WILL enable you to chart possible areas of improvement.

It CAN make it easier for you to determine which are worth pursuing, and in what order.

No CHARGE for your copy. The coupon will bring it quickly.

CHEM-PAK

FOR LOW-COST PACKAGING OF DRY CHEMICALS IN UNITS UP TO 25 LBS.

Where a more economical package is indicated, one answer may be CHEM-PAK, Union's hard-wearing, sift-proof paper bag • CHEM-PAK bags are made to your specification, in many paper combinations and with various closures. Their protective qualities are noteworthy, even in comparison with more expensive containers • They are versatile, easy to handle, inexpensive to pack and ship, colorfully suited to retail display.

CHEM-PAK
SIFT-PROOF PAPER BAGS FOR CHEMICAL PRODUCTS

UNION BAG & PAPER CORPORATION

New York: Woolworth Building
Chicago: Daily News Building

Union's modernized plant at
Hudson Falls, N. Y. Billion-bag
specialty packaging headquarters



NEW!

Mail this coupon for practical CHEMICAL
PACKAGE EVALUATOR. No charge or obligation.

Union Bag & Paper Corporation
Woolworth Building, New York 7
Please send me the new Chemical Package Evaluator.

Name _____ Title _____
Company _____
Address _____
City _____ Zone _____ State _____
Products _____

CP 662

PACKAGING

**High degree of pliability,
clarity and toughness
in vinyl films . . .**

process imparts great tear strength
and transparency

Uses: Some potential applications
are: drum, barrel, and container
liners; barrier materials; moisture-
proof containers; protective cover-
ings; and industrial packaging.

Features: Unusually high degree
of clarity, pliability, transparency,
and toughness.

The manufacturing process by which
the films are produced imparts great
tear strength and makes possible
the production of films with great
transparency.

Description: Reet extruded vinyls
are newly developed thermoplastic
films produced by the blow-extru-
sion method.

These products are in the final
phases of development and are not
commercially available yet. Along
with general purpose types, films for
non-toxic applications will be ob-
tainable.

Reet products are stated to possess
great heat sealing versatility in addi-
tion to retaining the advantages of
vinyl resins over other films.

All of the conventional techniques
have been used to seal, weld, and
form bags or enclosures. Seals and
welds may be formed by direct heat,
thermal impulse heat sealing, high
frequency electronic sealing and
heat-and-solvent sealing.

A preliminary control report dis-
closes the following properties for a
general purpose film of 0.0015 gage.

Color	natural
Odor	none
Tensile strength, psi	3750
Ultimate elongation, %	225
Elmendorf tear, gm/mil	118
Graves tear, lb	1.06
Fadometer, hr at 195°F, black bulb	160
Heat sealing	good at 210 ma

Films can be produced in a variety
of widths, thicknesses, colors and
formulations.

(Direct inquiries to Ross & Roberts
Sales Co., Inc., Dept. CP, 350 Fifth
Ave., New York 1, N. Y. . . . or
for more information check CP 3219
on handy form, pages 2 and 3.)

For more information on prod-
uct at left, specify CP 3218
see information request
blank between pages 2-3.

PACKAGING

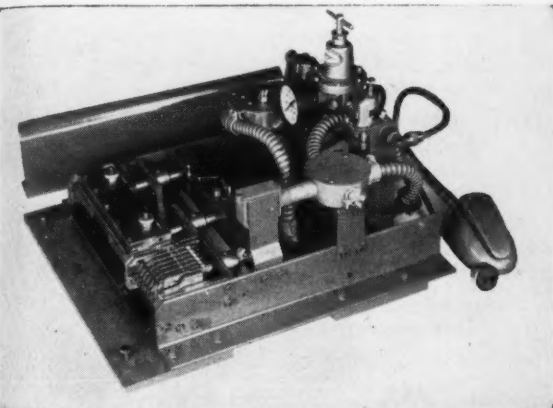
In vertical or horizontal position, imprinting machine works automatically . . .

marking device is such that operator's hands are kept free to place bags in position

Uses: For printing code identification and serial numbers on multi-wall paper bags, top and bottom.

Features: In horizontal or vertical position, mechanism frees hands to pre-position bag for imprinting.

Description: Automatic numbering and imprinting machine is air-operated and is equipped with a micro-switch foot trip and self-inking mechanism. Operation consists of placing the bag between the printing die face and the printing plate and actuating the electric switch,



Leaves operator's hands free to position bags

completing the printing cycle. A control can be supplied which will permit the bag itself to actuate the microswitch. Length of the imprint can be as much as 12" long; characters come in 1/2, 3/4, and 1" height.

(Development of Industrial Marking Equipment Co., Inc., Dept. CP, 454 Baltic St., Brooklyn 17, N. Y. . . or for more information check CP 3220 on handy form, pages 2 and 3.)

Bags are sealed automatically without being folded by operator . . .

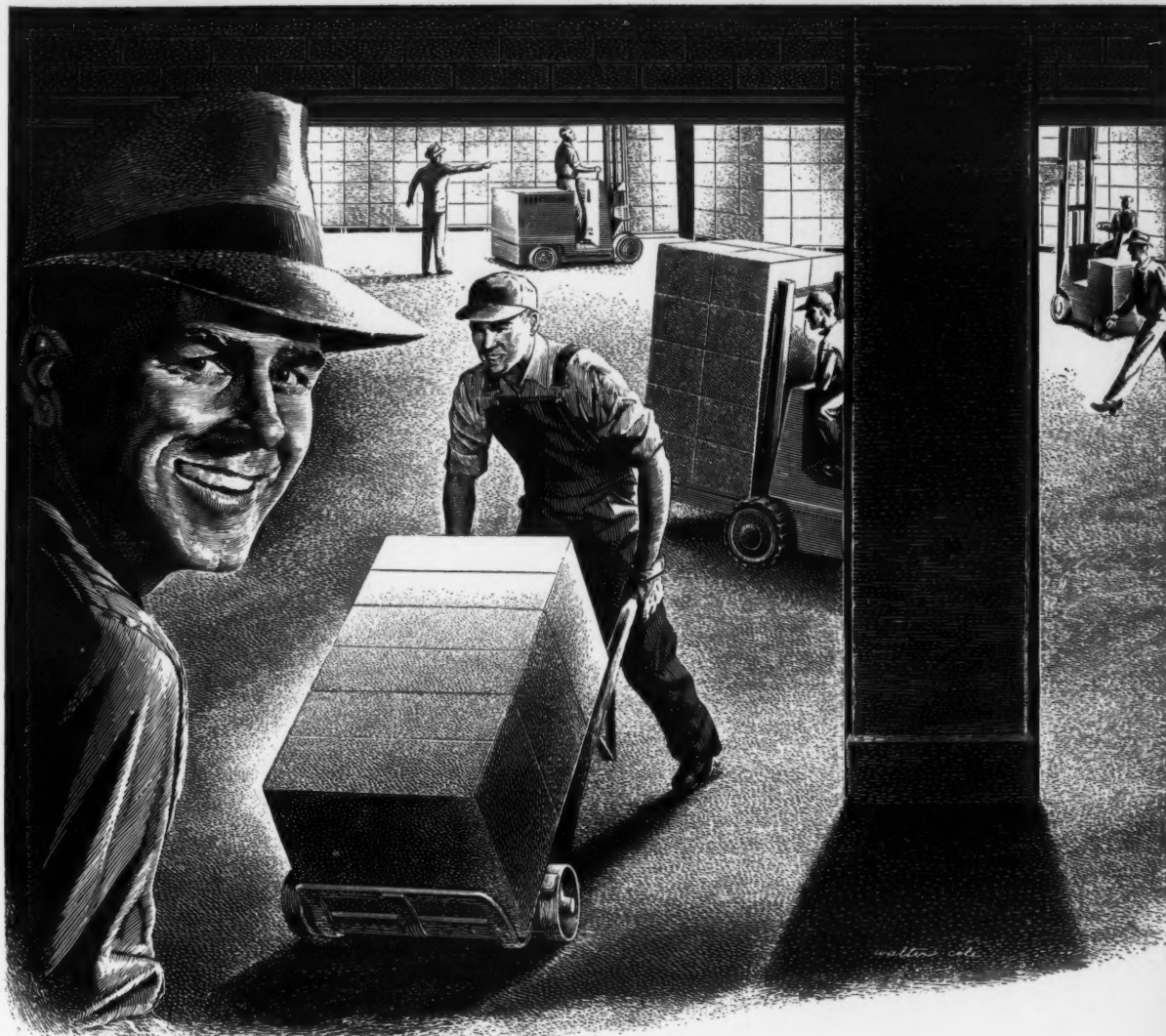
sensitive thermostat is adjustable to provide maximum amount of heat as required

Uses: For sealing bags with heat and pressure.

Features: Automatic folding bar eliminates necessity of operator placing bags between the jaws prior to sealing. Maximum heat penetration to inner bag surfaces is achieved with cartridge-type, hermetically-sealed heating elements mounted in both sealing jaws. Super sensitive dial-type thermostat adjusts to control heat to meet requirements of material being sealed.

Description: Heat, pressure, and dwell time are all controlled automatically. Folding bar automatically guides the bag tops between the jaws for either straight sealing or folding and sealing. The bar also prevents possibility of spillage from the open end of bags as the bag tops are fed into the machine in a vertical or near-vertical position. Special leveling plugs permit angling of the sealing jaws for the most comfortable and efficient operating position. Sealing surfaces available are:

(Continued on next page)



Gaylord Boxes Assure Faster, Easier Packing and Shipping

You save money in your shipping room when you use Gaylord Boxes.

Protection-engineered, Gaylord containers fit your product like a glove . . .

That's why they save time in packing and speed up shipping. Your nearest Gaylord Sales and Service office will be glad to demonstrate the custom features that have won leadership for Gaylord Boxes.

It's the unseen quality that gives you the extra margin of safety in

GAYLORD CONTAINER CORPORATION

General Offices: SAINT LOUIS

CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS • KRAFT BAGS AND SACKS • KRAFT PAPER AND SPECIALTIES

New York • Chicago • San Francisco • Atlanta • New Orleans • Jersey City • Indianapolis • Los Angeles • Seattle • Houston • Oakland • Minneapolis • Detroit • Columbus • Fort Worth • Tampa • Dallas • St. Louis • Cincinnati • Des Moines • Oklahoma City • Portland • Greenville • San Antonio • Memphis • Kansas City • Bogalusa • Chattanooga • Milwaukee • Weslaco • New Haven • Amarillo • Appleton • Hickory • Sumter • Greensboro • Jackson • Miami • Omaha • Mobile • Philadelphia • Little Rock • Charlotte • Cleveland





ON ARRIVAL!

CHASE Sharkkraft

Built to TAKE it!

THE ALL-CRINKLED MULTIWALL BAG

Chase Sharkkraft cuts costly breakage! All plies are crinkled to give "shock-absorbing" elasticity—assures great resistance to shocks, strains, and rough handling! The "shark-skin" crinkling provides a sure grip—it is easier to handle, stacks better! Choice of 2 to 5 plies. Attractive appearance and sharp, colorful printing help sell your product. Get the facts on this better container. Mail the coupon TODAY!

CUTS COSTLY BREAKAGE IN THE PACKAGING OF:

- Farm Products
- Powdered Milk
- Mineral Concentrates
- Seeds • Chemicals
- Pharmaceuticals
- Fertilizers • Rock Products
- Meat Scraps and Tankage
- Starch Products

bags for all industry and agriculture

- cotton bags of all kinds
- Topmill burlap bags
- paper and Multiwall bags
- Saxolin open mesh bags
- lined and combined bags, liners and specialties

CHASE BAG COMPANY
309 West Jackson Boulevard
Chicago 6, Illinois

Gentlemen: Please send me more information about SHARKRAFT bags for the packaging of

() Have Salesman Call

Name.....

Address.....

City.....State.....

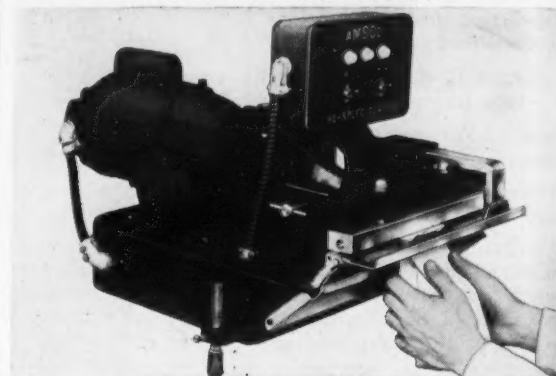
CHASE BAG CO. GENERAL SALES OFFICES: 309 W. JACKSON BLVD., CHICAGO 6, ILL.

BOISE • DALLAS • TOLEDO • DENVER • DETROIT • MEMPHIS • BUFFALO • ST. LOUIS • NEW YORK • CLEVELAND • MILWAUKEE
PITTSBURGH • KANSAS CITY • LOS ANGELES • MINNEAPOLIS • GOSHEN, IND. • PHILADELPHIA • NEW ORLEANS • ORLANDO, FLA. • SALT LAKE CITY
OKLAHOMA CITY • PORTLAND, ORE. • REIDSVILLE, N. C. • HARLINGEN, TEXAS • CHAGRIN FALLS, O. • WORCESTER, MASS. • CROSSETT, ARK. • SAN FRANCISCO

For information on Chase
Sharkkraft, Mail Coupon Today!

PACKAGING

(Continued from preceding page)



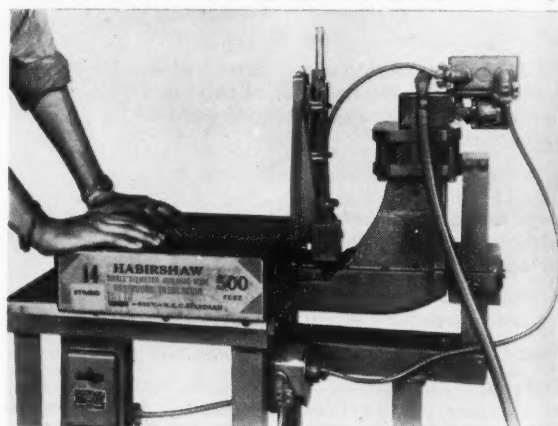
No need for operator to fold bags for sealing crimp, flat, or flat with horizontal bead. Standard dimensions of sealing surfaces are 1" wide by 12" long. (Development of the Amsco Packaging Machinery Co., Inc., Dept. CP, 31-31 48th Ave., Long Island City 1, N. Y. . . . or for more information check CP 3222 on handy form, pages 2 and 3.)

Air-operated stapling machine automatically closes carton . . .

equipment can also be adjusted for concealed stapling of fiber or corrugated material

Uses: For closing of fiber or corrugated filled cartons. Recommended for overlap cartons and end closure of long, narrow cartons of either overlap or slotted type.

Features: Automatic retractable anvil carton stapling machine staples filled cartons from the outside. When adjusted for concealed stapling, the staple penetrates ap-



Carton is stapled automatically when pushed against head of air-operated machine

proximately 2/3 of the way through the carton wall and is clinched. Unit requires less staples per unit area than other methods, manufacturer reports.

Description: Entire assembly is mounted on a standard size flat top stainless steel table designed to accommodate cartons of various sizes. Operation of the unit requires 60 psi air pressure. Machine automatically functions when the operator presses the carton against the stapling head.

(Model TH1-HAS is developed by the International Staple & Machine Company, Dept. CP, 801 E. Herrin St., Herrin, Ill. . . . or for more information check CP 3223 on handy form, pages 2 and 3.)

CHEMICAL PROCESSING

PACKAGING

Design of polyethylene oblong bottles assures optimum spray . . .

keeps liquid from emerging as disturbing stream

Uses: For use as spray bottles.

Features: Bottles are made so that user cannot press walls together, but are flexible enough to produce a sat-



Polyethylene spray bottle

isfactory spray. If user could squeeze bottle too far, he would displace the air and produce a stream instead of a spray.

Description: Polyethylene bottles are now available in oblong series. Modification included is a flat surface on bottom of thread. This allows close contact with closure and minimizes possibility of it "backing off." Bottles may be obtained with spray and constrictor inserts and closures. Two and four oz sizes and a variety of colors are offered.

(Announced by Elmer E. Mills Corp., Dept. CP, 2930 North Ashland Ave., Chicago 13, Ill. . . . or for more information check CP 3224 on handy form, pages 2 and 3.)

Readers of **CHEMICAL PROCESSING** are invited to submit concise briefs of their processing problems. With your permission these will be published (anonymously, if desired). We will place you in contact with any of the 33,000 people receiving CP who offer a solution.

For more information on product at right, specify CP 3225 . . . see information request blank between pages 2-3. ➡

BAGPAK

makes a bagful!

2- to 6-wall bags, complete size ranges, all standard total basis weights to meet all standard strength requirements, in any of the following types: SEWN VALVE • SEWN VALVE WITH TUCK-IN SLEEVES • SEWN VALVE WITH BAGPAK SLEEVES • OFFSET-SEWN FOR POST-HARDENING MATERIALS • CUSHION STITCH VALVE (no wax dipping necessary) • SEWN OPEN MOUTH (sewn through tape) • CUSHION STITCH OPEN MOUTH (tape over the needle holes) • PASTED VALVE • PASTED OPEN MOUTH • SELF-OPENING WITH SIFT-PROOF BOTTOMS • INSULATION BAGS • 2- to 10-lb. CONSUMER UNITS • BALER BAGS FOR CONSUMER UNITS • We manufacture our own natural kraft paper and any colors required; also all special protective papers.

BAGPAK ALSO MANUFACTURES BAG CLOSING MACHINES. FOR DETAILS ABOUT BAGS OR MACHINES, WRITE TO DEPARTMENT P-3, BAGPAK DIVISION, INTERNATIONAL PAPER COMPANY, 220 EAST 42ND ST., NEW YORK 17.



International Paper COMPANY

BAGPAK DIVISION

BRANCH OFFICES: Atlanta • Baltimore • Bartlesville, Kansas • Boston • Chicago • Cleveland • Denver • Detroit • Kansas City • Los Angeles • New Orleans • Philadelphia • Pittsburgh • St. Louis • San Francisco • IN CANADA: The Canadian Paper Products Ltd., Montreal, Ontario, Toronto

tube maintenance men give AIRETOOL the nod

Men who handle tube maintenance jobs give their nod of approval to AIRETOOL tube cleaners, tube expanders and accessory tools. They are easy to handle . . . work fast . . . don't break down or burn out when the going gets tough. The results are better work, in less time, at a saving. "On-their-toes" purchasing agents are familiar with AIRETOOL superiority and follow through by always specifying AIRETOOL when they want dependable equipment. For full details and literature, write The AIRETOOL Mfg. Co., 331 S. Center St., Springfield, O.

cadmium plated cleaners resist acids

Airetool provides tube cleaners that are cadmium plated for plants where the corrosive effects of acids take their toll on the life of ordinary tube cleaning equipment.

Airetool tube rolling control cuts tube rolling time in half and automatically eliminates dangers of over or under expansion.

Airetool expander with 4 expanding and 2 flaring rolls for perfect results in boiler tubes.

There's an AIRETOOL Tube Cleaner and Tube Expander for Every Type of Tubular Construction

AIRETOOL

MANUFACTURING COMPANY

SPRINGFIELD, OHIO

Branch Offices: New York, Philadelphia, Chicago, Tulsa, Baton Rouge, Houston

Representatives in principal cities of the U. S. A., Canada, Mexico, South America and England

Cuts Loose and Picks Up Grime Faster Than 6 to 18-man Crew

Floor machine operates at speeds up to 11 mph and has capacity of 20,000 to 60,000 sq ft per hr

In operation this 25 hp scarifying machine cuts loose and picks up hard, embedded layers of chemical deposits, oil, grease, dirt, etc. It cleans "on-the-run" at speeds up to 11 mph

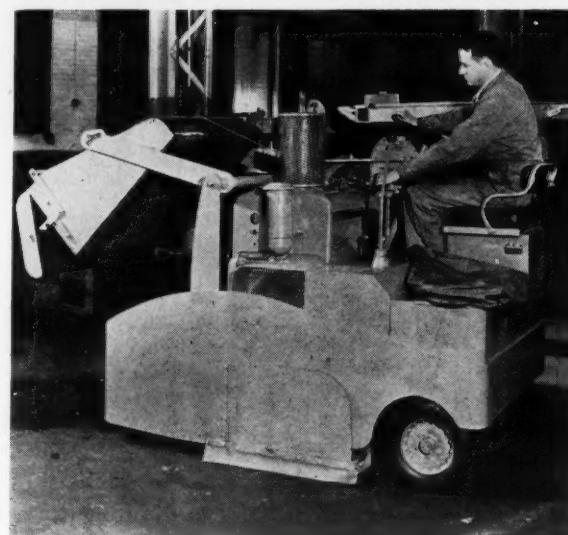
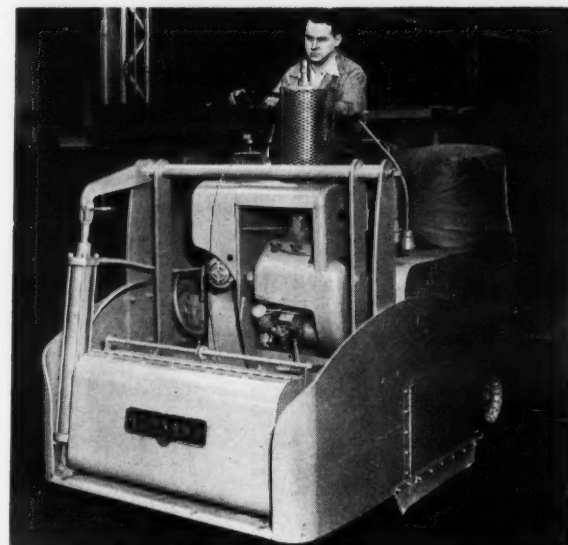
As grime is pulverized and sheared off, it's hurled into a 10 cu ft hopper. At the same time, a powerful vacuum fan pulls lighter dirt and dust into a heavy fabric bag. Brush lift and dirt hopper dump are hydraulically operated

It takes only about 18 sec for scarifying machine to lift and dump 1/4-ton load of soilage. Loaded hopper lifts to a 35" clearance, then dumps directly into a trash box.

Machine uses a wire brush for heavy soilage. Another accessory — the Revo-tool, with hundreds of steel cutters — shears off heavy deposits, such as dried paint, tar and cement splashes. A hydraulic control raises and lowers the wire brush (or Revo-tool) to get the right "bite" into floor grime

EXPRESSLY built to mechanize removal and maintenance of traffic-packed grime from trucking aisles, the recently developed Tenant Model R floor machine effects faster cleaning than a 6 to 18-man crew. With this machine, one man can clean about 20,000 to 60,000 sq ft per hr. In addition, it is said to produce a cleaner, smoother surface than the most skilled manual effort.

Scarifying and cleaning action is provided by a 36" wide cylinder which revolves at 1400 rpm. Two types of cylinders are used, depending on dirt conditions. Heavy soilage, such as dirt and grease, is cut loose by a wire brush containing twisted tufts of 20, 26, or 30-gage steel wire. Brush is reversible for sharpening and will not clog. Extra heavy soilage — like dried paint or varnish, tar and cement splashes — is pulverized by a Revo-tool which has hundreds of tool steel cutters. Revo-tool can be used for scoring concrete before applying new topping.



Driven by a 25 hp air-cooled, four-cylinder engine, the scarifying cylinder hurls loosened grime into a built-in 10 cu ft hopper. Latter is pivoted so that it "floats" over irregular surfaces. At the same time, an 11" high-volume fan pulls the lighter dirt and dust into a heavy fabric bag. Floor machine is equipped with a hydraulic system for fast, easy dumping. In 18 sec, it is reported, an operator can lift and dump average loads of 530 lb. Hopper can be raised to a 35" clearance for dumping directly into a tote or trash box. The "bite" of the brush (or Revo-tool)

When inquiring check CP 3226 on handy form, pgs. 2-3

into floor grime is also hydraulically controlled, so that the desired pressure and contact with floor surface is easily obtained.

Speed range of Model R is $\frac{1}{2}$ to 11 mph with a 4-speed, truck-type transmission. Gear ratios are: first speed, 6.40 to 1; second speed, 3.09 to 1; third speed, 1.69 to 1; fourth speed, 1.00 to 1; reverse, 7.82 to 1.

Dimensions are: 85" long, 48" wide, and 58" high. Frame of the machine is $\frac{3}{8}$ " thick all-welded steel. Compartment of the scarifying cylinder is "sealed-to-floor" by a heavy rubber skirt.

A high-pressure pump, with eight gal per min capacity at 400 rpm, operates the hydraulic system. Maximum pressure is 1000 psi.

(Model R scarifying machine is built by G. H. Tennant Co., Dept. CP, 2528 N. Second St., Minneapolis 11, Minn. . . or for more information check CP 3227 on handy form, pages 2 and 3.)

Easily installed, reflash separator recovers excessive heat for more work . . .

can be used in high pressure condensate and continuous blowdown systems

Uses: For recovering excess heat from reflash steam and putting it to work in plants having large amounts of high-

pressure condensate or continuous blowdown systems such as central power stations, chemical plants, oil refineries, paper mills, and other types of industry.

Features: Easily installed, reflash steam separator is so designed that water remaining after reflash steam is removed may be returned to the boiler for re-use, put through a heat exchanger, or exhausted.

Description: Separator is available in different

sizes. The discharge line from high-pressure steam traps is run into separator, which is vented or connected into the low-pressure heating or steam process line.

(Development of Strong, Carlisle & Hammond Co., Dept. CP, Cleveland 13, Ohio. . . or for more information check CP 3228 on handy form, pages 2 and 3.)

Fan cooled speed reducers feature universal mounting

Diagrams and photographs serve to describe "radiation" fan cooled speed reducers, which feature universal mounting arrangement. Complete information is provided in 28-page summary of operating data, dimensions, models available, typical installations, and part descriptions. "Crofts Radiation Fan Cooled Speed Reducers" is issued by National Transmission Products Inc., Dept. CP, 684 Broadway, New York, N. Y. When inquiring specify CP 3229 on handy form, pages 2 and 3.

for TOUGH fluid and gas handling jobs

ATLANTIC

FLEXIBLE METAL HOSE

Conveying nitric acid for use in batch nitrations is quick death for ordinary flexible metal hose. Sulphuric acid and plating solutions are other notorious killers. When temperature and pressure extremes and adverse handling conditions are also involved, hose replacement is frequent and expensive.

That's why—for tough jobs—it's good economy to specify Atlantic flexible metal process hose. Manufactured to survive the most destructive use, it is unequalled for leak-proof qualities, flexibility, durability, strength and lightness. It performs long after ordinary hose is scrapped and returns real savings in your material and labor dollar.

Whatever your application — conveying, controlling movement and vibration, correcting misalignments, compensating for expansion and contraction — there is an Atlantic flexible metal hose that is best for it.

Available in Seamless or Interlocking construction: Steel, stainless steel, monel, bronze. $\frac{1}{4}$ "—36" I.D. inclusive with appropriate fittings.

Our engineers have developed flexible metal hose for a number of classified nuclear applications. Though these types cannot be released at present, the experience gained is available for any unusual problems you may have.

Write for Chemical and Process Industries Bulletin 20D.

See our Catalogs in Sweet's Files for Product Designers and Mechanical Industries.

ATLANTIC

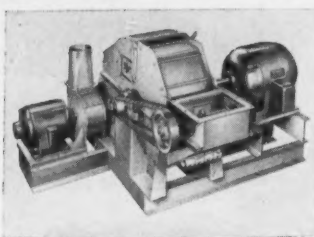
ATLANTIC METAL HOSE CO., INC.
106 West 64th St., New York 23, N. Y.

When inquiring check CP 3230 on handy form, pgs. 2-3

world's most complete line



Model No. 406. Especially adapted for granulating oil seed meal residues and other aggregates.



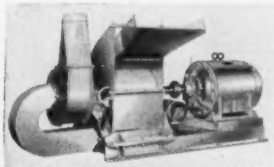
Model No. 216. Particularly suited for custom feed grinding.

Bauer hammer mills and impact grinders

Models, sizes, and accessories to meet the needs of chemical and feed manufacturers.

Our sales engineers will gladly consult with you.

Ask for literature and data.



No. 100 Series. Three sizes for the reduction of agricultural and industrial materials.

THE BAUER BROS. CO.

1728 Sheridan Ave. • Springfield, Ohio

When inquiring check CP 3231 on handy form, pgs. 2-3

Save with Pangborn

Unit-Type Dust Collectors

- ★ Economically priced.
- ★ Shipped assembled, to cut installation cost.
- ★ Small size permits locating at dust source, reducing piping cost, power requirement.
- ★ Using multiple unit collectors in place of "central" systems gives more flexibility, keeps various collected dusts separate for salvage.



Put this small, factory-assembled Pangborn type "CL" Dust Collector in areas of heavy dust concentration. All-metal construction (except filter cloth) . . . equipped with famous Pangborn non-sag screen frames (individually removable) and motor-driven screen shaker. Available in six sizes from 180 to 820 sq. ft. cloth area. Write for Bulletin 912 which gives specifications and engineering data to: PANGBORN CORP., 2700 Pangborn Blvd., Hagerstown, Md.

Look to Pangborn for the latest developments in Dust Control and Blast Cleaning Equipment



STOP THE DUST HOG from stealing profits with

Pangborn

DUST CONTROL

When inquiring check CP 3232 on handy form, pgs. 2-3

CONSTRUCTION & MAINTENANCE

Double mechanical shaft seal and cartridge type bearings are pump features . . .

result is totally enclosed unit that requires minimum attention, maintenance, and space

Uses: Under conditions when pump is handling gritty, abrasive, and corrosive liquids.

Features: Double shaft seal affords advantages of efficient sealing and prevents air leakage into pump when it is operating under suction lift. External sealing liquid is injected to the seal box under pressure to lubricate seal faces and prevent gritty fluid from reaching them.

Sealed, pre-lubricated ball bearings are packed with lubricant by manufacturer. Cartridge type bearings are said to require no further lubrication throughout service life.

Description: Single-stage, double-suction pumps have capacities to 2100 gpm at pressures up to 150 psi. Built in 3, 4, 5, and 6 inch sizes, the DMV (for medium heads) and the DHV (for high heads) are designed for general hydraulic services at temperatures up to 200°F.

Elimination of stuffing boxes has decreased shaft length between bearings, which makes shaft more rigid. Shaft is not threaded, reduced or slotted at any point over its unsupported length. This construction is said to eliminate any point on shaft where stress concentration and possible fatigue failure might occur. The impeller is attached by a shrink fit, similar to method of mounting high pressure turbine wheels. Cast iron casing, carbon steel shaft, and bronze impeller are standard.

(Product of Ingersoll-Rand Company, Dept. CP, 11 Broadway, New York 4, N. Y. . . . or for more information check CP 3234 on handy form, pages 2 and 3.)

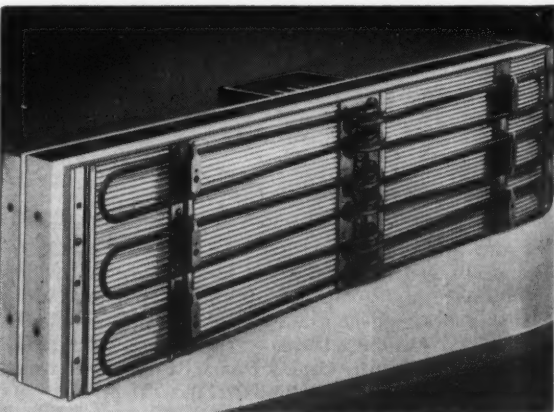
Installation is simple operation with ready-made panels

far-infrared radiation is absorbed even by clear glass and plastics, outside panels remain cool

Uses: Ready-made heating panels for baking or drying ovens.

Especially suited for work requiring crowding heat in a limited space.

Features: Quick, easy assembly. Depending on size and shape, complete ovens can be erected in several hours, ready to go to work. Far-infrared radiation is absorbed practically with equal speed by all colors from black to



Single radiant panel showing electric tubular elements, reflective sheeting, ventilation slots

CHEMICAL PROCESSING



VANCIDE OFFERS BETTER PROTECTION

VANCIDES, at low concentrations, offer positive control of bacteria, fungi, and algae.

VANCIDES are non-volatile. Their concentrations remain constant over wide temperature ranges to insure maintenance of preservative powers.

Non-toxic to humans and other warm-blooded animals, VANCIDES are neither primary irritants nor skin sensitizers and are perfectly safe to handle.

There are several VANCIDES, varying in composition and degree of solubility. When requesting samples, information regarding your particular preservative problem will aid us in making the proper recommendation. Write today for information and samples.

R. T. VANDERBILT CO.

SPECIALTIES DEPARTMENT

230 PARK AVENUE, NEW YORK 17, N. Y.

- ☐ Please send VANCIDE Bulletin 120
- ☐ Enclosed are details of my preservation problem, please send sample of recommended VANCIDE

NAME _____

POSITION _____

(Please attach to, or write on, your company letterhead)

When inquiring check CP 3233 on handy form, pgs. 2-3

CONSTRUCTION & MAINTENANCE

white, with negligible reflection. This radiation is absorbed by even glass and plastic which transmit near-infrared. Insulation permits a 500°F ambient inside of oven while outside surface temperature of panels remains cool enough to lay your hand on.

Description: Chromalox electric infrared oven panels are in two modular sizes with built-in bus bars, insulation and frame. Intense radiation can be dialed from 4 to 100 percent of capacity for accurately selecting and maintaining work temperatures up to 700°F.

Two sizes are available: 1 x 4', with a capacity of 10.8 kw — and the 2 x 4' panel with 21.6 kw capacity. Output of panels is in excess of 9200 Btu's/sq ft per hour.

These two modular sizes can be assembled into ovens of almost any length, width, or height, and can be rearranged to fit new work size requirements, or readily moved to various locations. Panels of the self-supporting unit weigh 14 lb/sq ft.

Built-in bus bars allow connecting as many as seven adjacent panels in parallel with only one power supply connection.

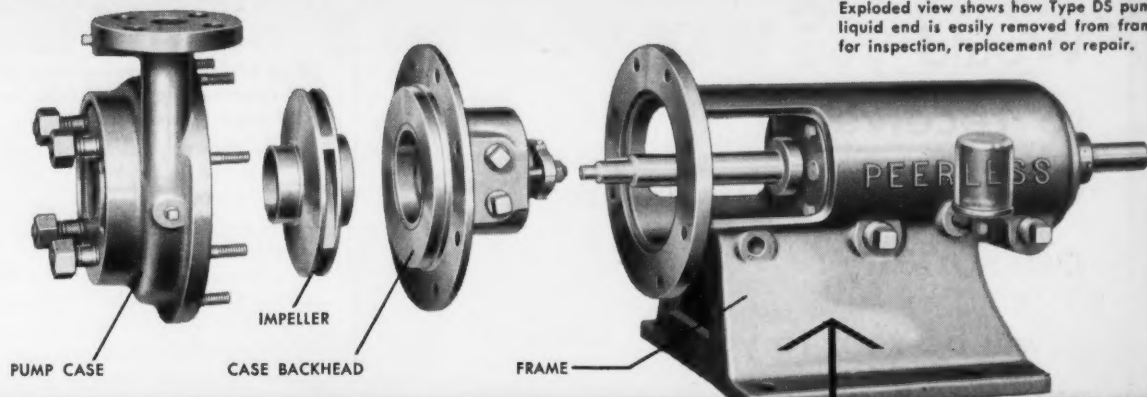


Oven assembly photographed before electrical connections are made

section. Fully enclosed, continuous bus has 100 amp capacity per line, and can be used with single or three-phase power up to 575v. Copper power supply lines can be used.

Far-infrared generating tubular elements give an even heating pattern without hot or cold spots. Heated length of one unit stops at center of panel exactly where heated length of next one begins, resulting in unvarying uniformity of overall radiation. Airways between insulation layers can be used to preheat air for solvent evaporating applications or other drying uses. Air may be forced downward through preheating airways to introduce warmed air at bottom of oven.

(Development of Edwin L. Wiegand Co., Dept. CP, 7517 Thomas Blvd., Pittsburgh 8, Pa. . . . or for more information check CP 3235 on handy form, pages 2 and 3.)



Exploded view shows how Type DS pump liquid end is easily removed from frame for inspection, replacement or repair.

Simplicity

IS THE ESSENCE OF GOOD DESIGN!

**PEERLESS
TYPE DS
CHEMICAL
PROCESS
PUMPS**

Simplest to APPLY, INSTALL, OPERATE and SERVICE

Peerless Type DS all-purpose chemical pumps will meet all these important requirements: 1) quality construction; 2) continuity in operation; 3) moderate cost; 4) quick availability of both original units and parts; 5) easy, simple maintenance. Open or enclosed impeller construction available. Grease or oil lubrication available depending on service. Capacities range: up to 1500 gpm. Heads range: up to 231 feet. Temperatures: up to 600°F.

Heavy duty, deep groove ball thrust bearing.

Rigid one piece shaft for long bearing and packing life.

Heavy duty, deep groove ball radial bearing.



Cutaway view of grease lubricated Type DS enclosed impeller design

WRITE FOR BULLETIN

Completely describes and illustrates the Peerless Type DS chemical process pump. Profusely illustrated with cutaway pump views, sectional drawings, elevations and dimensional data and contains performance and complete construction details. Mail coupon today for your copy.

PEERLESS PUMP DIVISION FOOD MACHINERY AND CHEMICAL CORPORATION

Address inquiries to Factories at:
Los Angeles 31, California and Indianapolis 8, Indiana
Offices: New York, Chicago, St. Louis, Atlanta, Tulsa; Dallas, Plainview and Lubbock, Texas; Fresno, Los Angeles; Phoenix, Albuquerque, N. M.



PEERLESS PUMP DIVISION
Food Machinery and Chemical Corporation
301 West Avenue 26
Los Angeles 31, California

Please send us a copy of Peerless Type DS Pump Bulletin No. B-1600.

NAME _____

COMPANY _____

STREET _____

CITY _____ STATE _____

CHEM. PROC.

When inquiring check CP 3236 on handy form, pgs. 2-3

Would you like to receive CHEMICAL PROCESSING personally?

It will be sent to you
without charge or
obligation . . .

. . . if you qualify
. . . if you request it

If you are responsible for processing operations in an administrative capacity as plant superintendent, chemical engineer, chemist, engineer or equivalent responsibility . . . in a plant of substantial operations* where chemical processing is an important factor . . . CHEMICAL PROCESSING will be sent to you without charge or obligation if you request it. Use form below. In requesting, be sure to answer all questions. If your firm is not rated or listed in standard references, indicate size of the company by capacity, annual sales or number of employees. Unless all information is given, magazine will not be sent.

*"Substantial operations" does not necessarily mean an extremely large plant. But requests for the magazine exceed supply so we must get standards to insure publication being sent where it can be used to best advantage.

CHEMICAL PROCESSING
111 EAST DELAWARE PLACE
CHICAGO 11, ILLINOIS

Please send me CHEMICAL PROCESSING without charge or obligation

Name _____

Title _____

Company _____

Rating of Company _____

Street _____

City _____ Zone _____

State _____

Main Products _____

CONSTRUCTION & MAINTENANCE

**50 lb of feed pressure into pump
will produce up to 20,000 lb
discharge pressure . . .**

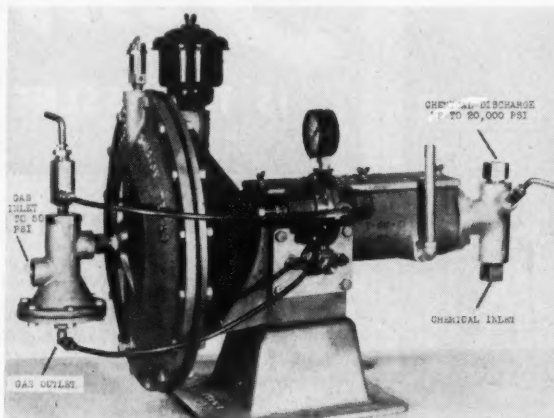
mechanical parts operate in an oil bath, sealed against dust and atmospheric influences

Uses: This pump was developed to inject chromates and rust inhibitors into high pressure oil and gas lines; however, it is finding many other uses, including: handling other chemicals; booster pump for hydraulic presses; production testing of valves, castings, pressure vessels, piping systems; laboratory work, etc.

Features: Mechanical parts operate in an oil bath, sealed against dust and atmospheric influences.

Description: Feed pressures are easily adjusted from 5 to 50 psi with the Model MSM 5001 injector pump to give desired output pressures of 100 to 20,000 psi. Volume of liquid discharge can be accurately set to deliver 1/2 pt to 360 gal per 24 hr period.

This small pump which weighs only 62 lb is supplied with 1/4 or 1/2" stellite pistons and valves when used for sus-



Injector pump weighs only 62 lb

tained high pressure. For lower pressures 1" stainless steel pistons and valves are used. The suction is equipped with a combination sight feed strainer and cut-off; discharge chamber has bleed-off for easy priming and sample matching.

(Product of Texsteam Corp., Dept. CP, 320 Hughes St., Houston 11, Tex. . . . or for more information check CP 3238 on handy form, pages 2 and 3.)

Explains procedure, materials to install concrete floors

Twenty-page bulletin describes material and equipment used to install concrete floors. Floors are formed from power-compressed concrete to offer strength and resistance to heavy traffic. Compacting is done with powered rollers or vibratory impactors to reduce voids between larger rock particles. Sectional illustrations show comparative positions of rock particles in wet mix concretes and low water ratio mixes. Bulletin extends comparison of these two systems of mixing to include size aggregate used, compacting or densifying processes, and curing time.

Low water ratio mix uses New York State emery stone and Birdsboro trap rock in aggregate. Size of fractures are controlled from No. 6 sieve to 3/8" screen. Chemical analysis shows rocks to be composed primarily of alumina, ferric and ferrous oxides, and silica. Compressive strengths run as high as 14,000 psi. Toppings for floors may be

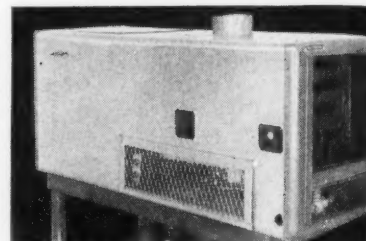
Sicon*

HEAT-RESISTANT FINISH

*A PRODUCT OF THE SILICONES

**1. Sicon Protects
Gas Heater
Combustion
Chambers at 875°**

**2. Sicon in COLORS
Preserves
Appearance of
Heating Equipment
Indefinitely**



CENTRAL GAS HEATER
Mfg'd by the JOHN ZINK CO., TULSA

For years the protection of combustion chambers and outer coverings of heating equipment has been a problem.

The John Zink Company, a leading manufacturer of gas heaters, solved this problem with SICON.

SICON protects their combustion chambers against extreme high heats of 875° without powdering or losing its color.

SICON, in attractive colors, also preserves the outside appearance of their products, adding greatly to sales appeal, and prolonging life.

The John Zink Company now uses SICON for all hot applications.

Inside and outside—SICON is the finish that can often do the job where all others fail.

**WRITE FOR LATEST TECHNICAL
DATA TODAY**

Sicon

Silicone-Base Finish is
manufactured exclusively by

MIDLAND INDUSTRIAL FINISHES CO.

Waukegan, Illinois
ENAMELS • SYNTHETICS
LACQUERS • VARNISHES

When inquiring check CP 3239
on handy form, pgs. 2-3

CHEMICAL PROCESSING

Installed on old concrete bases which are structurally sound as well as on new floor bases. Toppings vary in size from $\frac{3}{4}$ to $1\frac{1}{2}$ " in thickness.

Bulletin concludes with step by step installation of low water ratio concrete floor. Photographs serve to illustrate various phases of procedure. "Traffic Concrete" is issued by Flash-Stone Company, Dept. CP, 3723 Pulaski Ave., Philadelphia 40, Pa. When inquiring specify CP 3240 on handy form, pages 2 and 3.

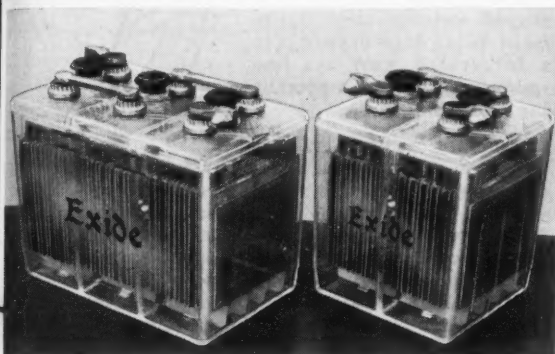
A glance tells electrolyte level and approximate charge left in battery . . .

lightweight transparent cover resists acids and eliminates breakages in handling

Uses: For stationary applications including electric switchgear, communications, emergency lighting and power, laboratories, alarm systems, etc.

Features: Transparent polystyrene plastic cases show at a glance the level of the electrolyte and the approximate state of charge in the battery at any time. Markings on the transparent case indicate the recommended high and low levels. Acid resistant, the transparent case virtually eliminates breakage common to transportation and handling of storage batteries in glass jars.

Description: Built into each outer cell is a chamber in which a red, a white, and a blue ball float in electrolyte when battery is fully charged. When the battery is 10 per cent discharged the blue ball sinks; when it is one-



Transparent cases allow immediate visibility in determining battery condition

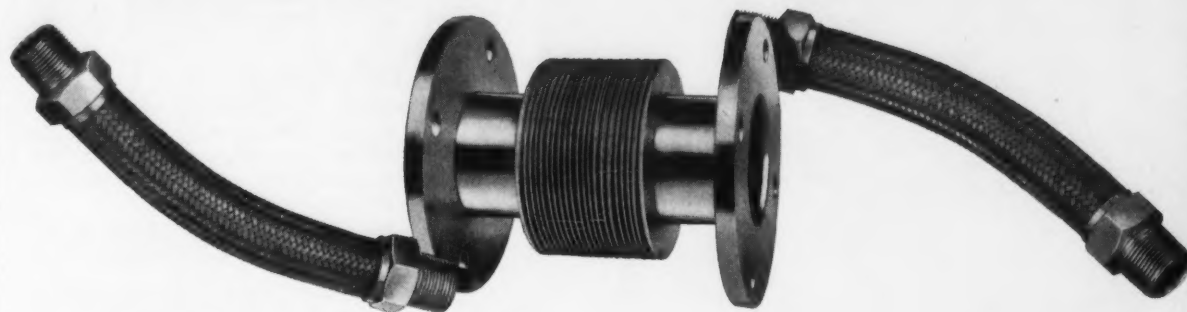
third discharged the white ball sinks, and when two-thirds discharged the red ball goes down. An automatic venting device of clear polystyrene is built into each cell to prevent excessive gas accumulation.

Of two and three cell construction and designated as Exide Type PLX, the storage batteries have the clear plastic cover firmly cemented to the case. Positive plates are flanked by spun glass retainers, against which are placed slotted plastic plate protectors. The latter are held apart by microporous rubber separators.

The two-cell batteries have a 50 amp-hr capacity at the 8-hr rate, while the three-cell units have a 100 amp-hr capacity at the same rate. They may be used in combinations to supply any desired range of voltages. Dimensions range from $4\frac{1}{2}$ to $11\frac{3}{8}$ " in length. Width and height have been standardized at $7\frac{5}{16} \times 10\frac{3}{8}$ " in all four available sizes.

(Development of The Electric Storage Battery Co., Dept. CP, Box 8109, Philadelphia 1, Pa. . . or for more information check CP 3241 on handy form, pages 2 and 3.)

Are these 3 new to you?



It would pay you to know all about them

Don't let their modest appearance fool you; these are puzzle-busters and job-simplifiers extraordinary.

This is **TITEFLEX®**—the All-Metal Flexible Hose with 1001 industrial applications. It withstands temperatures, pressures, vacuum, vibration and the corrosive action of a host of liquids and gases. How can you use it? To connect moving parts of machinery. To connect misaligned parts. To absorb vibration, contraction, expansion and pulsation. To "transmit" vacuums or convey high-frequency currents. To shield wire and cables. And to handle difficult materials—from acid and ammonia to sea water or steam.

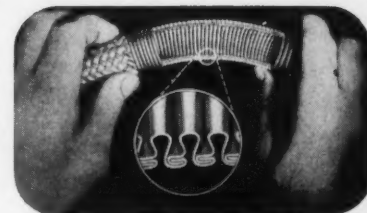
Here's **UNIFLEX**—the new *Helically-corrugated* Seamless Flexible Tube. It's tough, corrosion-resistant, leak-proof. And its *helical* construction gives it greater flexibility and longer life in applications too critical for ordinary concentric tubing. UNIFLEX is for you—if you're concerned with hydraulic lines, oil burners, refrigeration machinery, air conditioning equipment, pumps, compressors, diesels or machine tools. For leakless service. UNIFLEX fittings have metal-to-metal seat. Seal is produced through spring washer effect of hose on fitting body.

TITEFLEX BELLOWS are the *efficient* means of absorbing lineal movement in many types of equipment. Their welded, convoluted-diaphragm construction lets them do this without weakening the lines in which they are inserted and without reducing the flow rates of gases or liquids being conveyed. You can use TITEFLEX BELLOWS to seal high pressure valves and shafts, accommodate lineal contraction and expansion or high frequency vibration, and to handle gases and corrosive liquids under high temperature conditions. Special designs are available and complete bellows assemblies can be furnished with any required types of fittings.

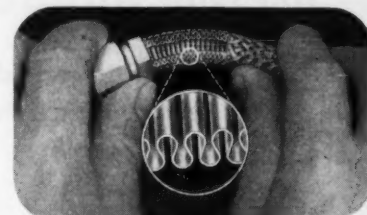


Get the facts without obligation

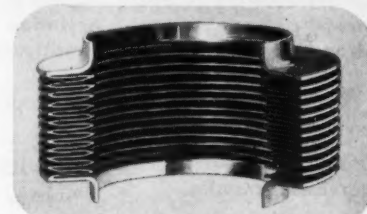
TITEFLEX literature contains full descriptions, technical data and suggestions for use. And Titeflex Designers and Engineers have a thorough knowledge of these products' behavior under exacting service conditions. Check the products that interest you and mail the coupon today. We'll be glad to help you with any specific problem.



Sectional view shows rugged, flexible, seamed construction of Titeflex.



Note the helically-corrugated, seamless wall structure of Uniflex.



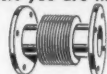
Cross-section shows the welded, convoluted-diaphragm construction of Titeflex Bellows.

Let Our Family of Products Help Yours

✓ Check products you are interested in.



☐ SEAMED AND SEAMLESS METAL HOSE



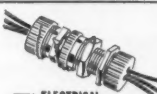
☐ PRECISION BELLOWS



☐ IGNITION HARNESS



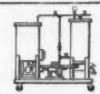
☐ IGNITION SHIELDING



☐ ELECTRICAL CONNECTORS



☐ RIGID AND FLEXIBLE WAVE GUIDES



☐ FILTERS



☐ FUSES

Titeflex

TITEFLEX, INC.
505 Frelinghuysen Ave.
Newark 5, N.J.

Please send me without cost information about the products checked at the left.

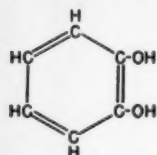
NAME _____
TITLE _____
FIRM _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____



When inquiring check CP 3242 on handy form, pgs. 2-3



HAVE YOU TRIED Koppers Catechol?



In Bactericides • Antioxidants
Photography • Perfumery • Medicinals
Leather • Electroplating

And Catechol enters into a host of other chemical reactions:

Hydrogenation	Alkylation	Etherification
Halogenation	Oxidation	Ammonolysis
Nitration	Acylation	Condensation
Sulfonation	Esterification	Coupling

● Koppers Chemical Division produces this important chemical in two commercial grades:

Catechol C.P.—with a minimum purity of 99.0%, in the form of crystalline granules.

Catechol Resublimed—with a minimum purity of 99.6%, in the form of glistening white needles.

Catechol C.P. is useful in chemical manufacturing and processing, while Catechol Resublimed has medicinal and photographic applications.

The ready availability of this organic chemical recommends its further study in your laboratories. For more information, write for your copy of Koppers Bulletin C-9-127 which gives full details on properties, uses and reactions of Catechol.



KOPPERS COMPANY, INC.
 Chemical Division • Pittsburgh 19, Pa.

When inquiring check CP 3243 on handy form, pgs. 2-3

CONSTRUCTION

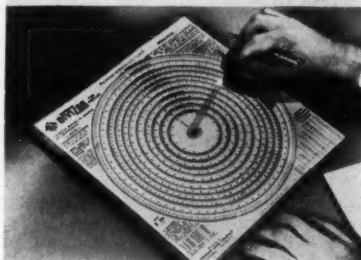
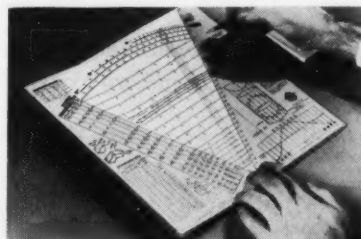
Pipe layout simplified to only 4 readings from center line . . .

computer gives readings for any angle up to 126°

Uses: Complete angles of two pieces or multi-piece bends, y-layouts, etc., are read on computer and transferred to actual pipe, sheet metal, templet or drawing board.

Divisor may be used for getting ordinate spaces for templet layouts.

Features: Pipe layout is simplified to use of only four readings from center line. Computer gives direct read-



Pipe bend angle computer (top) and circle divider

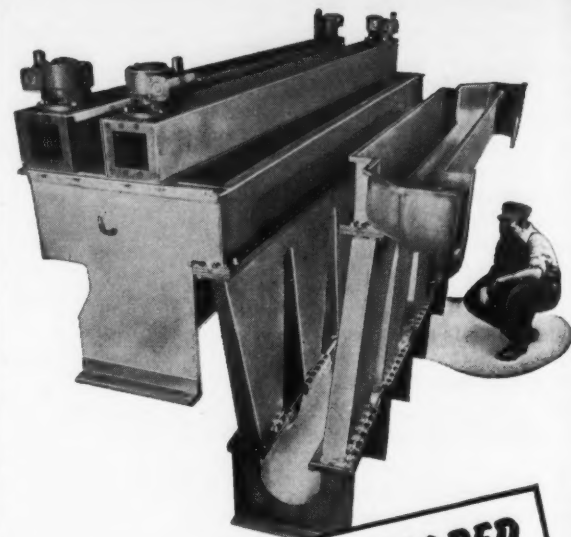
ings for any angle of bend up to 126 degrees, in steps of one degree or less, on pipe diameters from one to 20 inches.

Circle divider gives instant reading of circumference divisions from 1/2 to 1/16 in fractions of inch for any circle up to 72 inches in diameter.

Description: Computer gives distances in inches along pipe from vertical center line. Only four measurement readings are required to mark pipe (by quadrants) at 16 different ordinate points on circumference.

Computers have pointers made of Vinylite plastic rigid sheet. This plastic material is said to insure accurate readings under any weather condition. Both instruments, Angle Meter and Divisor, are available in folding type for field use and flat type for shop use. Instruments measure 12 inches square flat, 12 by 4 1/2 inches when folded.

(Products of Interstate Sales Company, Dept. CP, 123 E. 18th St., New York 3, N. Y. . . or for more information check CP 3244 on handy form, pages 2 and 3.)



INTRICATELY SHAPED
STAINLESS STEEL EQUIPMENT



When you require intricately shaped stainless steel equipment, bring your drawings to a fabricator who has had special experience in producing difficult shapes.

The fabricating of stainless steel requires skill even in the making of standard shapes. When odd shaped vessels are constructed, even greater skill is required. Your fabricator must have special tools and dies, tested manufacturing techniques and above all long experience with the behavior of stainless steel during fabrication to produce vessels that give maximum efficiency—longer life for your application.

S. Blickman, Inc. works *exclusively* with stainless steel and alloys—has been doing so for many years. Our engineering experience—our production techniques—our specially equipped plant—may help you solve the problems of getting better-built processing equipment in odd shapes. Consult with us.

S. BLICKMAN, INC. • 706 GREGORY AVE., WEEHAWKEN, N. J.

S. BLICKMAN, INC.
 Guards Alloys in Fabrication

SEND FOR THIS VALUABLE BOOK
 A request on your letterhead will bring our guide, "What to Look For When You Specify Stainless Steel for Your Processing Equipment."



When inquiring check CP 3245 on handy form, pgs. 2-3

CHEMICAL PROCESSING

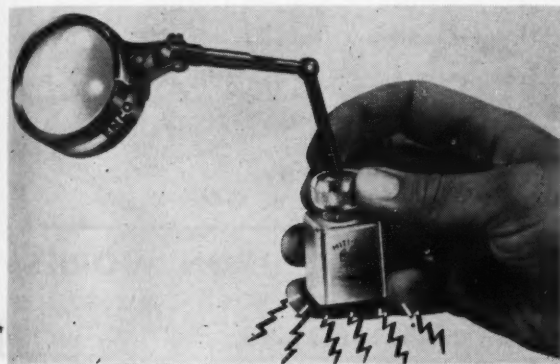
Clings tenaciously with 50 lb pull to hold magnifying glass in position . . .

with magnetic base, 4-power device is also adaptable for small dial indicators

Uses: For holding magnifying glass with which it is equipped or with accessories, magnetic base can also hold most small dial indicators.

Features: With magnetic pull of approximately 50 lb, holder mounts to curved or flat surfaces instantly, eliminating need for clamps.

Description: Miti-Mite #120 performs double duty. Magnetic base holder is finished in oxide, blackened finish, and measures 1 x 1 1/8 x 1 1/2". Flexible ball and socket swivel assembly permits setting magnifier at any position



Strong magnetic holder supports magnifier, indicators in any position

or angle, or precision-positioning of dial indicators. Aluminum frame magnifier 2 1/8" in diam and 7/8" thick houses two separate 4-power optical-ground distortion-free 2" lenses so locked as to make them dustproof.

Accessories are carburized, hardened, and include one 7/32 and one 5/16" diameter post, a 4 1/2" extension rod, and an adaptor to take the magnifier as well as 5/32" stud-type indicators. Accessories permit use of most test indicators.

(Development of Enco Manufacturing Co., Dept. CP, 4524 W. Fullerton Ave., Chicago 39, Ill. . . . or for more information check CP 3246 on handy form, pages 2 and 3.)

Acrylic surfaces not crazed by fast-drying coating

Uses: Coating material for acrylic plastics — Lucite, Plexiglas, etc. Especially useful for masking-off or rendering portions of these plastics non-transmittal to light.

Features: Does not craze the surface of acrylics. Is rapid drying so that as many as three coats can be applied in a relatively short time.

Description: Coating material has been designated NE 108 Synthetic Aluminum Coating, and is currently available in a variety of colors. A clear coating is also offered. Maker reports he feels that many unexplored applications exist for NE 108.

(Product of Neehi Protective Coatings, Inc., Dept. CP, 340 West Hoffman Avenue, Lindenhurst, N. Y. . . . or for more information check CP 3247 on handy form, pages 2 and 3.)

JUNE, 1952

H.P. pipe gaskets like these
made to your order
by gasket specialists...

FLARE TYPE GASKET WITH BELLOWS ACTION



PROFILE GASKET



V-TITE GASKET

OVAL OCTAGONAL



SOLID FLARE TYPE GASKET



...to save you both time and money

When you need metallic gaskets for high pressure piping, put the job up to Johns-Manville Goetze Gasket specialists. You benefit in many ways:

You get the exact gaskets you need for maximum efficiency under *your* operating conditions, tailor-made to fit *your* equipment. You get the savings in cost made possible by intensive specialization and modern production tooling. And you get the full benefit of over sixty years' experience in designing specialized metallic gaskets for industry's most complex sealing requirements.

Typical styles of Johns-Manville Goetze Gaskets that have been made to order for high pressure

piping service are shown above. The flare type gasket with bellows action and the solid flare type are particularly suited for pressures above 5000 psi; the profile and V-Tite gaskets are generally used for lower pressures. Each of these is fabricated to extremely close tolerances. Other styles can be made to any desired cross section to meet your individual requirements.

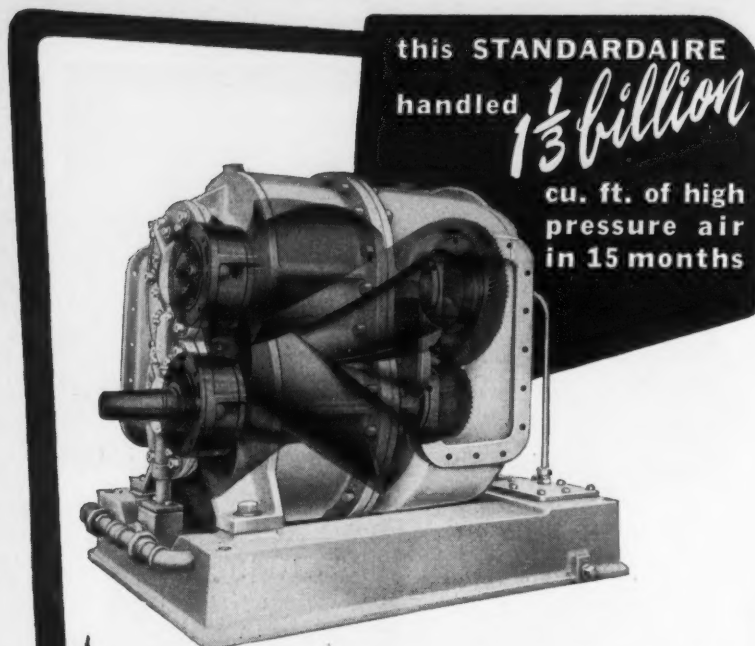
For more information about Johns-Manville Goetze Gaskets, write for your copy of Catalog PK-35A. Or send us your drawing or template for an immediate quotation. Address: Johns-Manville, Box 60, New York 16, N. Y.



Johns-Manville Goetze GASKETS

THERE'S A JOHNS-MANVILLE PACKING AND GASKET FOR EVERY SERVICE

When inquiring check CP 3248 on handy form, pgs. 2-3



this STANDARDAIRE
handled *1 1/3 billion*
cu. ft. of high
pressure air
in 15 months

Then we dismantled the unit

... FOUND IT AS GOOD AS NEW

- Unit 9B16-213, for 15 months of day and night outdoor service, was operated beyond its rated capacity to meet unforeseen demands. It was replaced by a larger Standardaire Blower. The engineer of this plant asked that the hard working unit be sealed and returned to our factory so that he personally could observe the dis-assembly and measurements for wear.

- Main and Gate Rotors like new—interior of blower completely dry and free of oil—no wear in other internal parts.

- Timing Gears on Gate and Main Rotors—wear very slight—no increase in back lash could be detected.

Write for specific data—Dept. F9
Read Standard Corporation, 370
Lexington Ave., New York 17, N. Y.

- Axial clearance of Main Rotor Shaft Thrust-Radial Bearing, increased less than .0005"—other bearings in perfect order.

- Even at the extremely high peripheral speed of these gears, they were found to be very quiet in service.

- Standardaire Blowers are sturdy—precision built units with proved staying power.



BLOWER-STOKER DIVISION

READ STANDARD

CORPORATION

NEW YORK • CHICAGO • ERIE • YORK • LOS ANGELES

When inquiring check CP 3249 on handy form, pgs. 2-3

CONSTRUCTION

Improve application and physical properties of coating . . .

corrosion-resistance and hardness are paramount

Uses: For lining storage tanks and fume hoods as well as coating metal, wood, Transite, and concrete surfaces.

Features: Carbo-Kote 6020 resists most non-oxidizing acids, corrosive mixtures, solvents, and alkalis. Representative resistance is indicated by its freedom from attack by 37% hydrochloric acid, 100% trichlorethylene, and 70% caustic soda — to 90°C.

Hardness equals that of rubber. Blunt hammer blows are sustained as long as the base for coating is not noticeably deflected. Coatings on wood have been dented without cracking.

Coating may be applied with brush or spray. For heavy duty service or repair work, it may be compounded with inert fillers and trowled in place.

Description: Coating is Furan base thermosetting resin. Its Durometer reading is 85-90 (steel is 100). It hardens at normal temperatures without baking, and finished coating is said to be hard and abrasion resistant. Shrinkage of hardening coating, as normally applied, is about .1%.

(Product of Carboline Company, Dept. CP, 7603 Forsyth Blvd., St. Louis 5, Mo. . . . or for more information check CP 3250 on handy form, pages 2 and 3.)

Lubricant evaluated in over 120 chemical and gas services . . .

data sheet indicates performance during eight years

Uses: For pressure lubricated valves and flow meter bearings operating at extreme temperatures or handling corrosive chemicals or steam.

Features: Resistance of lubricant is tabulated for over 120 chemical and gas services in which it has been used since introduced in 1944. Although tests must be made for each particular application, tables are good indication of its usefulness.

Description: Silicone lubricant is satisfactory for use at temperatures of -40 to over 500°F. It does not melt nor break down to form a gummy deposit on valve surfaces. It is inert, highly water repellent, and has good chemical and oxidation resistance.

(Product of Dow Corning Corp., Dept. CP, Midland, Michigan . . . or for more information check CP 3251 on handy form, pages 2 and 3.)

**YOU GET
REAL SERVICE
WITH**



**AMESTEAM
GENERATOR**

Before Installing . . . A

Complete Manual on "How To Do It"

After Installing . . . Our **LOCAL**

Service Man

Starts Unit

and Provides

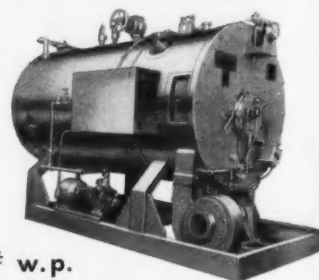
Three Months

Free Service

10 to 500 h.p.

15# to 200# w.p.

OIL or GAS



AMES IRON WORKS
BOX D-6, OSWEGO, N.Y.

Builders of Better Boilers Since 1848

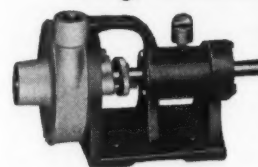
When inquiring check CP 3252 on handy form, pgs. 2-3

**ERTEL STAINLESS STEEL
Centrifugal & Self-Priming**

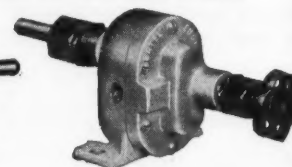
PUMPS

with minimum of parts . . .

Meet requirements for
handling corrosive liquids in the
Drug, Chemical and Food field.



MODEL SCP
CENTRIFUGAL



MODEL ESP
SELF-PRIMING

Write for fully illustrated Literature

**ERTEL ENGINEERING
CORPORATION**

KINGSTON 3,

NEW YORK

Branch Office & Showroom Located in New York City

COMPLETE LINE OF

REGISTERED

Liquid Handling Equipment



When inquiring check CP 3253 on handy form, pgs. 2-3

CHEMICAL PROCESSING

CONSTRUCTION & MAINTENANCE

Chemical porcelain armored with reinforced plastic stands more abuse . . .

protected from impact during handling and operation, insulated against thermal shock

Tufclad is the name the Lapp Insulator Company has applied to its new line of chemical porcelain that is now armored with glass-fiber-reinforced plastic. Line which includes valves, piping, and other equipment of fully-vitrified solid white porcelain now takes advantage of this armor shell as a cushion to protect against impact damage in handling or operation and as insulation against thermal shock.

Armor is applied in the form of multiple layers of heavy glass-fiber-woven cloth, impregnated with a modified phenolic resin of high adhesive strength for bonding to por-



celain. Jet black in color, the oven-cured armor shell fully covers porcelain. Armor is capable of holding operating line pressures against gross leakage, even though porcelain is cracked or broken.

Tufclad armoring is now available on all Lapp standard Y valves, flush valves, pipe and fittings 1/2"-8", plug cocks, safety valves. The armoring is readily adaptable to special shapes too — tower sections, nozzles, covers, etc.

(Lapp Insulator Company, Inc., Process Equipment Div., Dept. CP, Le Roy, N. Y. . . . or for more information check CP 3254 on handy form, pages 2 and 3.)

Acrylic plastics become static-free when non-flammable agent is applied . . .

does not leave product with moisture film to attract dust or dirt particles that may scratch

Uses: For protecting acrylic plastics against dust or dirt that spoil appearance of the plastic and that might cause scratches to the surfaces.

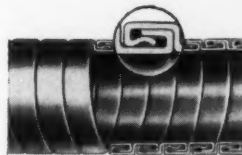
Features: Non-flammable anti-static agent does not depend upon moisture for its effectiveness. Products thus treated are not left with microscopic film to which dust and dirt will adhere. Requires no polishing.

Description: Anstac 2-M will not craze thin molding or sheets; may be applied by brush, dip, spray, or a cloth previously dampened in the solution.

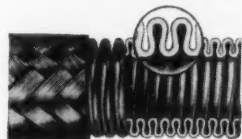
(Development of Chemical Development Corp., Dept. CP, Danvers, Mass. . . . or for more information check CP 3255 on handy form, pages 2 and 3.)

JUNE, 1952

Wherever chemical products must be conveyed



CMH convoluted hose is available in a variety of types including square locked, ball bearing and fully interlocked . . . in steel, bronze and other alloys. Sizes up to 12", I.D.



CMH corrugated steel and bronze hose is available in standard sizes from 1/2" through 12" I.D. for burst pressures to 12,000 psi, temperatures to 1040° F. Stainless steel types also available.



Flexon identifies CMH products that have served industry for over 50 years.

CMH

FLEXIBLE METAL HOSE makes the job easier!

AT THE source, in transport or in the processing plant, CMH Flexible Metal Hose can simplify handling chemical products. Its high degree of flexibility combined with the rugged durability of metal makes it ideal for any connections that involve motion, vibration or misalignment. Used as vibration connections, as loading and unloading hose, as tank settling connections and in a score of similar applications, CMH Flexible Metal Hose provides the dependability so vital to the chemical industry. Freedom from deterioration and resistance to wear and tear assures greater over-all economy.

Write for descriptive literature giving full information on CMH Flexible Metal Hose. There is no obligation.

CHICAGO METAL HOSE Division

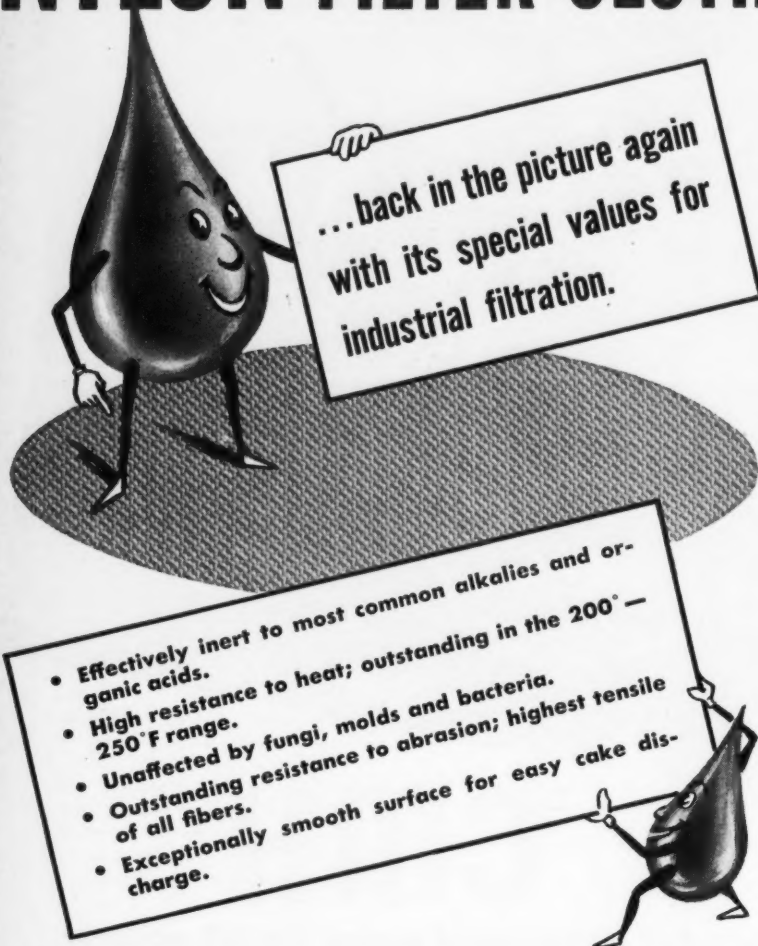
Flexonics Corporation

1319 S. Third Avenue • Maywood, Illinois

Manufacturers of Convoluted and Corrugated Flexible Metal Hose in a Variety of Metals • Expansion Joints for Piping Systems • Stainless Steel and Brass Bellows • Flexible Metal Conduit and Armor • Assemblies of These Components in Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

When inquiring check CP 3256 on handy form, pgs. 2-3

NYLON FILTER CLOTH



- Effectively inert to most common alkalis and organic acids.
- High resistance to heat; outstanding in the 200° - 250° F range.
- Unaffected by fungi, molds and bacteria.
- Outstanding resistance to abrasion; highest tensile of all fibers.
- Exceptionally smooth surface for easy cake discharge.

Under severe caustic conditions, at high temperatures, NYLON filter cloth has outlasted cotton cloth by as much as 15 times. Similarly, in neutral solutions where tensile strength and abrasion resistance are controlling factors, our NYLON cloth has outworn, outperformed cotton 4 to 5 times.

For production purposes we can supply you with NYLON filter cloth woven on our looms . . . a wide range of weaves and weights. Standard widths are available without quantity limitation; special widths can be made to order in as little as 100 yard lots.

We recommend NYLON filter cloth for better, more economical filtration in many process industries. Write for full details and samples — put NYLON to work saving dollars in your Plant.



Weavers of Industrial Filter Media for over Forty Years

The National Filter Media Corp.

General Offices & Mills: New Haven 14, Conn.
Western Office & Factory: Salt Lake City 1, Utah

Sales Offices—Representatives

Chicago, Ill. Cincinnati, Ohio Houston, Texas Oslo, Norway Johannesburg, South Africa
2627 West 19th St. Rosalawn Center Bldg. 1406 Second National Bank Bldg. Nicolai Friis Edward L. Bateman

When inquiring check CP 3257 on handy form, pgs. 2 & 3

CONSTRUCTION

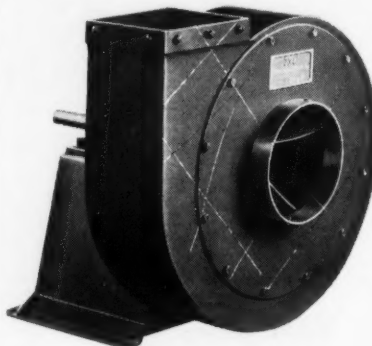
Dust-tight steel housing protects reversible exhaust fan . . .

exhauster wheels can handle even "stringy" materials

Uses: For conveying materials, dust removal, smoke fumes and vapor exhausts, ventilation, cooling and blowing operations.

Features: All-steel, dustproof housing permits easy access to wheel and change of discharge and rotation direction. All-steel wheels are suitable for handling all types of materials, including "stringy" types.

Description: Six models are available with speeds ranging from 2550 to 4750 rpm, and with fan sizes from 4 to 9 inches. High pressure ex-



Can handle "stringy" types of material

hausters are also made for special applications. Hub construction has no protruding arms, and eddy currents are eliminated, reducing shock loss and thereby providing a smooth flow.

Unit's two ball bearings are of standard design, and are protected by a dust-proof housing.

(Development of Rees Blow Pipe Mfg. Co., Dept. CP, 347 Seventh Ave., San Francisco, Calif. . . . or for more information check CP 3258 on handy form, pages 2 and 3.)

Reports expanded line of aluminum fasteners

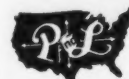
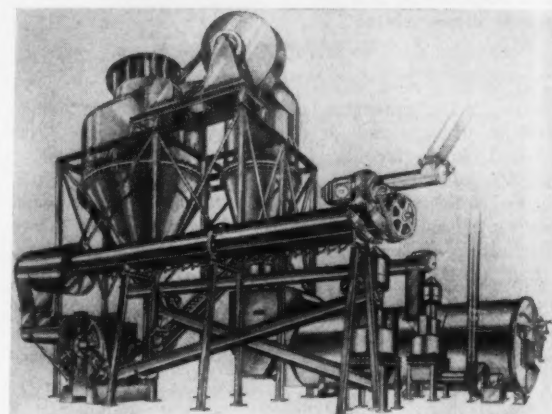
Manufacturer announces broadened line of aluminum fasteners to include variety of sizes and types of bolts, screws, self-tapping screws, nuts, washers, rivets, and accessories.

Catalog which lists all items is available.

(Products of The H. M. Harper Company, Dept. CP, Morton Grove, Ill. . . . or for more information check CP 3259 on handy form, pages 2 and 3.)

P&L WELDING & MACHINE WORKS, Inc.

Specialists in Processing Equipment



BY-PRODUCTS PLANT

Starting with provision of a cooker steam seal and being continuous through the cooker, press, drier, wet and dry mills, and ending with the dry meal blower. Capacities up to 20 tons per hour.

Wherever used declared
"THE BEST IN THE BUSINESS"

P&L WELDING & MACHINE WORKS, Inc.

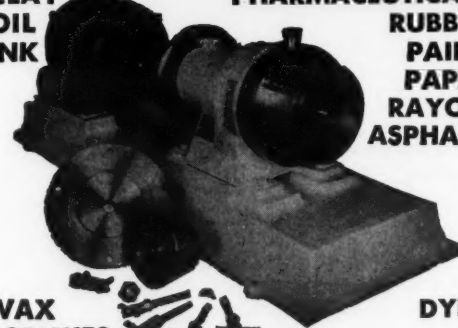
519 East La Palma Street,
Anaheim, Calif. Phone: Anaheim 4311

When inquiring check CP 3260 on handy form, pgs. 2 & 3

CHARLOTTE COLLOID MILLS

Control Product · Improve Production

• CLAY • PHARMACEUTICALS •
• OIL • RUBBER •
• INK • PAINT •
• PAPER •
• RAYON •
• ASPHALT •



• WAX • DYES •
• POLISHES •
• FOOD PRODUCTS • COSMETICS •



Write for Descriptive Literature
CHEMICOLLOID LABS INC.

Manufacturer and Distributor

30 CHURCH ST., NEW YORK 7, N. Y.
DISTRICT OFFICES

Baltimore • Chicago • Detroit • Los Angeles • Atlanta • New Orleans

When inquiring check CP 3261 on handy form, pgs. 2 & 3

CHEMICAL PROCESSING

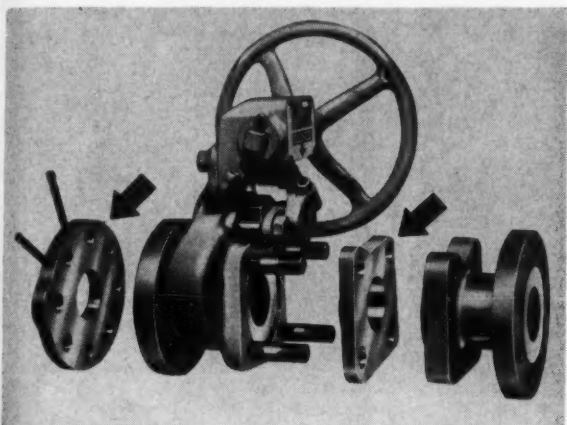
Keeps valve mechanisms clear of frost and ice at temps as low as -110° F . . .

heat from elements is transferred directly to the valve seats—heating flow opening and mechanism

Uses: Designed to keep valve mechanisms clear of frost and ice in liquid carbon dioxide lines at temperatures as low as -110° F. Many other applications are being developed which include both hot, cold and viscous liquid and gas lines.

Features: Heat from the elements is transferred directly to the valve seats, and as a result, both the entire flow opening through the valve and the operating mechanism are heated.

Description: Single-disc Okadee valves require the heating element at right in the illustration. Double-disc valves can be equipped with both elements illustrated.



All heated valve sizes from 2 to 6" are available, with pneumatic, hydraulic, solenoid or manual control.

Heating elements can be provided for either 110 or 220 volt operation, with inputs ranging from 400 to 3000 watts per unit. It is reported that heated valves for hazardous locations will be offered soon.

(Announced by Okadee Co., Dept. CP, 332 S. Michigan Ave., Chicago 4, Ill. . . . or for more information check CP 3262 on handy form, pages 2 and 3.)

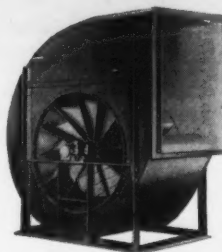
Motors and reducers enclosed together in one housing, 1/2 to 75 hp . . .

gear ratios range from 2.5:1 to 97:1 and are offset, planetary, right-angle worm-wheel types

A new gearmotor line, comprising motor and speed reducers compactly mounted in a single housing and in motor ratings from 1/2 to 75 hp, has been added by manufacturer. Speed ratios range from 2.5:1 to 97:1. Gearing is of planetary, offset, or right-angle worm-wheel types. Motors are available in AC squirrel-cage and wound-rotor, DC shunt, series and compound types. Open-drip-proof, totally enclosed, non-ventilated and fan-cooled frame constructions are available also. Gearmotors can be adapted for horizontal, side-wall, ceiling, or vertical mounting.

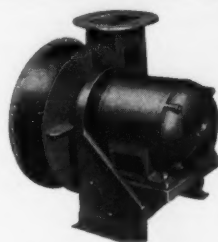
(Development of Star-Kimble Motor Div., Michle Printing Press & Mfg. Co., Dept. CP, 200 Bloomfield Ave., Bloomfield, N. J. . . . or for more information check CP 3263 on handy form, pages 2 and 3.)

JUNE, 1952



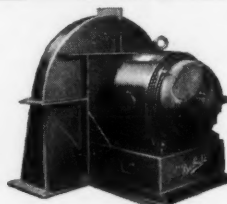
LIMIT-LOAD FANS

For large-scale ventilation. Quiet, non-overloading. Sizes up to 500,000 c.f.m. Bulletin 3675.



TYPE "CB" PRESSURE BLOWERS

For single-stage pressure blowing up to 2 1/4 pounds, per square inch. Bulletin 3553-A.



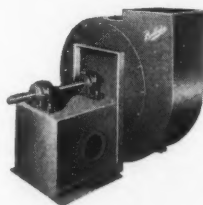
TYPE "CC" PRESSURE BLOWERS

In sizes for pressures up to 4 pounds and capacities up to 75,000 c.f.m. Bulletin 3553-A.



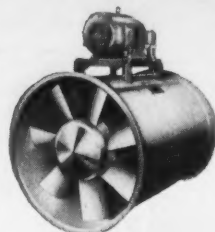
BABY CONOIDAL FANS

Compact, for portable or duct-connected service. Quiet, efficient. Bulletin 3499.



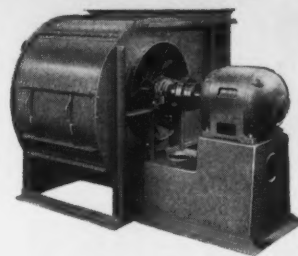
INDUSTRIAL EXHAUSTERS

With interchangeable wheels for air exhausting or materials conveying. All-welded. Bulletin 3576.



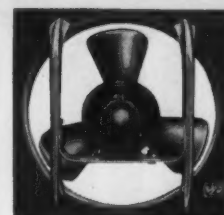
AXIAL FLOW FANS

For light-duty ventilation and air conditioning service. Compact, non-overloading. Bulletin 3533-C.



POWER PLANT FANS

Primary, forced draft, induced draft—built for the severest service. Bulletin 3750.



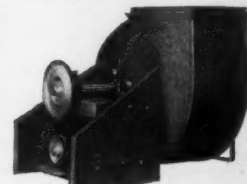
BREEZO FANS

Easy-to-install wall fans. Durable and very economical. 6 sizes. Bulletin 3222-F.



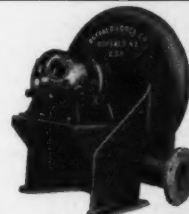
VOLUME FANS

For blowing or exhausting, up to 10" s.p. 8 discharge positions. Bulletin 3615-A.



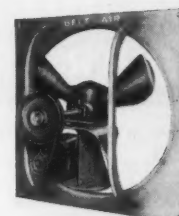
BELTED VENT SETS

Compact, "package" fans for duct or free air delivery. Non-overloading. Bulletin 3720.



"RE" BLOWERS-EXHAUSTERS

Larger versions of "Buffalo" "E" Blowers, in sizes from 50 to 1600 c.f.m., for pressures up to 40" of water.



BELT-AIR FANS

Efficient, quiet wall fans for free air delivery up to 19,000 c.f.m. Bulletin 3222-F.

There's a "Buffalo" FAN For The Results YOU Want!

With the complete line of "Buffalo" centrifugal, axial flow and propeller fans, you can pick your fans to pinpoint specifications! You can pick the *right* fan for the volume desired—for pressure to be encountered—for the conditions of heat, moisture, cold, abrasion or corrosion expected. And with every "Buffalo" Fan, you get that careful engineering and construction that always means a satisfactory job. For the exact results you want, look to "Buffalo", First for Fans.

WRITE FOR ENGINEERING BULLETINS AND IT'S

"Buffalo"

FOR CENTRIFUGAL PUMPS

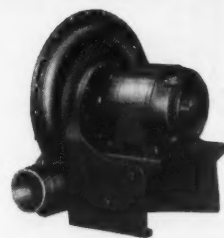
You'll find a full line of single and double-suction pumps to handle *your* liquids under *your* conditions. For all details, write:

BUFFALO FORGE COMPANY and BUFFALO PUMPS, INC.

524 Broadway, Buffalo, New York
PUBLISHERS OF "FAN ENGINEERING" HANDBOOK
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
Canada Pumps, Ltd., Kitchener, Ont.
Sales Representatives in all Principal Cities

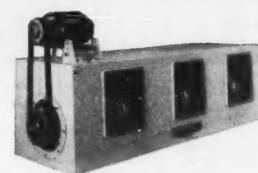
"Buffalo"

FIRST FOR FANS



"E" BLOWERS-EXHAUSTERS

For oil or gas furnace, blowing line boosting, cleaning. Bulletin 3014-C.



SHORTBOY VENTILATING SETS

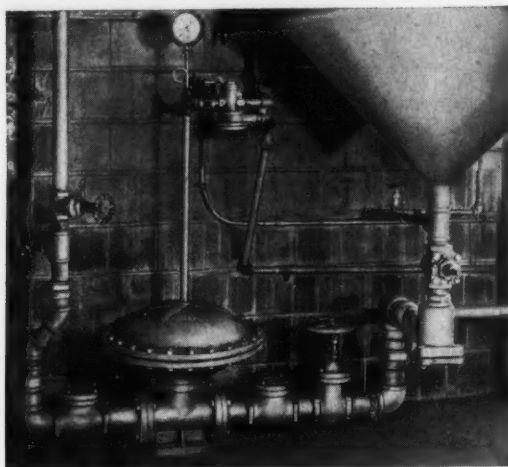
New high efficiency all-aluminum blowers with hollow shaft. Bulletin 3701.

When inquiring check CP 3264 on handy form, pgs. 2 & 3

ODS

Diaphragm SLURRY PUMP

link-free simplicity... a low maintenance feature!



There's nothing novel about a diaphragm being used to transmit a pumping impulse to stream of slurry or liquid. Up to that point the O.D.S. is similar to all other diaphragm slurry pumps.

But where the O.D.S. Pump does differ is in the way the diaphragm gets its impulse. In the O.D.S. this is created pneumatically—not mechanically. There is no link connecting the diaphragm with the source of power. There is no hole in the center of the diaphragm because there is no need for it. And further there are no slots or holes around the perimeter of the diaphragm where it is clamped between the cover and casing.

This combination of 'no mechanical link to the diaphragm' and 'no slots or holes in the diaphragm' makes the O.D.S. just about the simplest diaphragm slurry pump you can find anywhere. You can readily appreciate what these two design features mean in the way of low maintenance. Since maintenance is an important factor in pumps, why not get all the details about the O.D.S. Pump? In writing for our Bulletin 309-R, tell us about your pumping problem. You see, we also have the Olivite Centrifugal Chemical Pump. It might be better for your requirement.

New York 18 — 33 W. 42nd St. Chicago 1 — 221 N. LaSalle St.
Oakland 1 — 2900 Glascock St. San Francisco 11 — 260 Calif. St.
Export Sales Office — New York • Cable — OLIUNIFILT

FACTORIES:
Hazleton, Pa.
Oakland, Calif.

OLIVER UNITED FILTERS



WORLD WIDE SALES, SERVICE AND MANUFACTURING FACILITIES

CANADA
E. Long, Ltd.
Orillia, Ontario
MEXICO & CENT. AMERICA
Oliver United Filters Inc.
Oakland, Calif.

INDIA
Dorr-Oliver (India) Ltd., Bombay
EUROPE & NORTH AFRICA
Dorr-Oliver S.A. Brussels
Dorr-Oliver S.N.a.R.L. Paris

Dorr g.m.b.h. Wiesbaden (16)
Dorr-Oliver Co., Ltd., London, S.W. 1
Dorr-Oliver S.d.R.L. Milano
Dorr-Oliver, N.V. Amsterdam-C

PHILIPPINE ISLANDS
E. J. Nell Co.
Manila

HAWAIIAN ISLANDS
Honolulu
A. R. Duvall

WEST INDIES
Wm. A. Powe — Havana
SOUTH AMERICA & ASIA
The Dorr Co.
Stamford, Conn.
AUSTRALIA
Hobart Duff Pty., Ltd.
Melbourne
SOUTH AFRICA
E. L. Bateman Pty., Ltd.
Johannesburg, Transvaal

When inquiring check CP 3265 on handy form, pgs. 2-3

CONSTRUCTION & MAINTENANCE

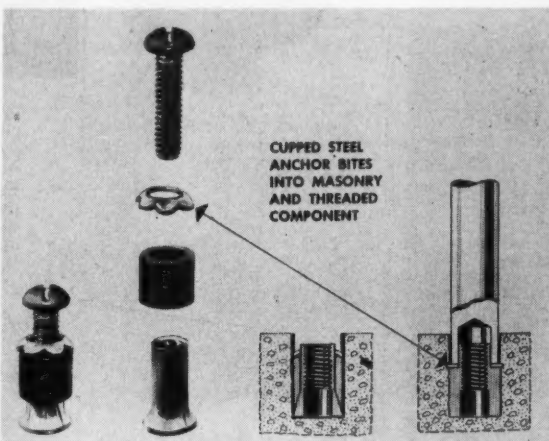
**Bolts, screws are firmly secured
in brickwork or masonry
by anchor grip...**

"mushrooming" action of lead sleeve to prevent looseness in spite of vibration or strain

Uses: For anchoring machine screws, stove bolts, or wood screws securely in brick or masonry.

Features: Easily installed, screw anchor provides increased holding strength and resists pulling out or loosening under conditions of vibration or strain.

Description: Principal parts are a threaded insert, lead sleeve, and a cup-shaped fluted steel anchor. When driven into place the lead mushrooms out and steel anchor collapses, forcing sharp edges into the masonry and the threaded component. Thus, steel reinforces lead to make an anchor that won't pull out. A tamping tool, provided



Exploded view shows how parts form tight, permanent anchor for bolts and screws in masonry

with every 100 anchors, is used to mushroom the lead sleeve and flatten the steel anchor. Manufacturer also provides a blow tube that is inserted into the masonry hole to completely remove all dust and dirt. This assures solid anchorage against masonry and eliminates binding to loose dirt that would result in a weak anchorage.

(Development of Super-Grip Anchor Bolt Co. Inc., Dept. CP, 3333 N. 22nd St., Philadelphia 40, Pa. . . or for more information check CP 3266 on handy form, pages 2 and 3.)

Serves as designer's guide to properties of welded steel

Six-page bulletin employs pictures and sectional illustrations to acquaint engineer with design properties of welded steel. Basic differences of strength and rigidity between steel and gray iron are discussed. Samples of weld metal, mild steel, and gray iron are shown under sufficient magnification to contrast grain structure. Tests show weld metal to have tensile strength of 70,000 to 80,000 psi, shear values of 50,000 psi, and compression ratings of 80,000 psi. On this basis designer can rely on tension or compression of welded joints from 15,000 to 20,000 psi; shearing range from 10,000 to 15,000 psi.

Bulletin pictures samples which were tested for ductility and corrosion. Discussion includes tests of "sub-standard" weld, uniformity of hardness, resistance to fatigue and impact. One-piece construction is available to meet design

THREADED SPECIALTIES

EYE BOLTS

by an
exclusive method



Among Pawtucket's many specialty products, these lower-cost eye bolts or "swing" bolts are the leaders in this field. Pawtucket's exclusive production method keeps cost low, dimensional accuracy unusually high and strength above standard.

Pawtucket eye bolts are made in standard sizes 1/4" and larger, or to your specifications. In any size, you can depend on a uniform Class 3 fit.

BETTER BOLTS SINCE 1882

PAWTUCKET

MANUFACTURING COMPANY
327 Pine Street - Pawtucket, R.I.
THE PLACE TO SOLVE YOUR BOLT PROBLEMS

When inquiring check CP 3267 on handy form, pgs. 2-3

CHEMICAL PROCESSING

LUBRICATE PLUG VALVES

**10 to 15 times
FASTER**

**One Company
saved over
\$10,000.00
in one year!**

**Reduces
plug valve
maintenance
costs 1/3.**

Using the low-cost DELTA-DESCO SYSTEM one operator can lubricate 10 to 15 valves in the time usually required to lubricate one with the conventional jack screw. Think of the man-hours saved.

DELTA-DESCO Plug Valve Lubrication SYSTEM

Includes DELTA Adapter Fittings, High Pressure Gun, DESCO Specialized Lubricants, and Engineering Service. Write for facts and figures.

ANOTHER VALVE SAVER —

**DELTA AUTOMATIC
Plug Valve LUBRICATOR**
A simple device, lubricates valve each time it is opened and closed. Ideal for loading platform, manifold, LPG and other frequently used valves. Ask for catalog.



**DELTA
ENGINEERING SALES CO.**
806 Louisiana Ave. Phone 5-2416
SHREVEPORT, LOUISIANA, U.S.A.
Sales Offices in All Principal Cities

When inquiring check CP 3268
on handy form, pgs. 2-3

CONSTRUCTION & MAINTENANCE

requirements through weld fusion of adjoining components. By eliminating joints, loads can be carried through any member without danger of concentrating or localizing stresses. Starting points for structural failures are avoided.

Bul 830B is issued by The Lincoln Electric Company, Dept. CP, Cleveland 17, Ohio. When inquiring specify CP 3269 on handy form, pages 2 and 3.

800-cycle oscillator provides high sensitivity for motor testing . . .

not a "growler", tester indicates condition on meter; can find one shorted turn of #40 AWG wire

Uses: Tests motors, generators, or other electrical devices based on inductive coils.

Features: Test is speedy and more sensitive than conventional electrical tests.

Description: PMD Tester locates electrical faults in any type of winding by impressing an 800-cycle signal and measuring electrical response with a sensitive meter. It is capable of detecting a single shorted turn with wire as fine



Quick reading for most winding defects

as #40 American Wire Gage. It also detects open circuits, shorts between phases, shorts to ground, reversed terminal connections, wire breakage, and material defects.

Since the tester supplies its own signal, both AC and DC winding are tested in a *de-energized* condition. Rod-like single probes are used to test distributed windings; field coils and squirrel cage rotors are tested with double probes. Instrument consists of a power supply unit, a vacuum tube oscillator, a regulator and rectifier circuit, and a meter. Standard tubes are used throughout and the entire instrument is housed in a single, portable case. Weight: 13 lb.

(Specific information is available from the manufacturer, Columbia Technical Corporation, Dept. CP, 5 E. 57th St., New York 22, N. Y. . . . or for more information check CP 3270 on handy form, pages 2 and 3.)

Testimonial reports cash savings from humidity conditioning

Four-page bulletin carries stories on application of humidity conditioning to manufacture of photographic film and to expansion of existing refrigeration cooling equipment. Film manufacturer states that his firm saved an annual net sum of \$40,000 thru use of humidity conditioning. "Humidity Engineer" is issued on letterhead request to Surface Combustion Corp., Dept. CP, Toledo 1, Ohio.

OLIVITE Acid-Handling PUMP

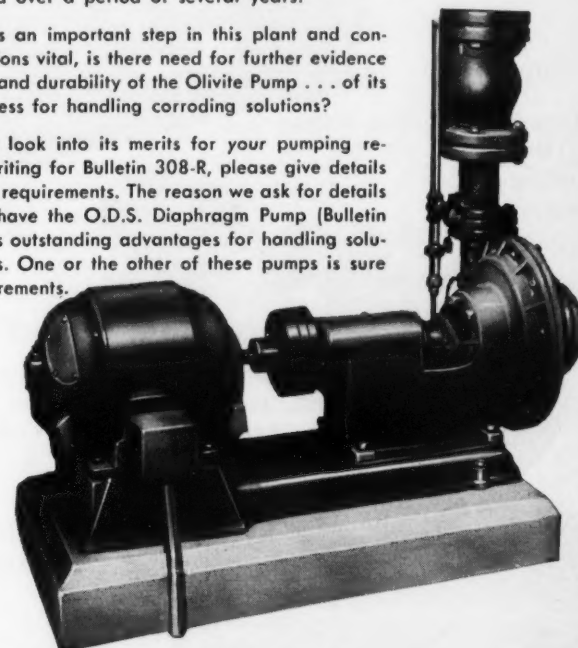
**Approved to the Extent
of Over 100 Pumps in One Plant**

HERE, in the east there's a large chemical plant with extensive acid pumping operations. Not only is the total volume handled very large but several different solutions, both hot and cold, are involved.

In this one plant there are over 100 Olivite Acid-Handling Pumps . . . with purchases spread over a period of several years!

Since pumping is an important step in this plant and continuity of operations vital, is there need for further evidence of the efficiency and durability of the Olivite Pump . . . of its practical usefulness for handling corroding solutions?

We suggest you look into its merits for your pumping requirements. In writing for Bulletin 308-R, please give details of your pumping requirements. The reason we ask for details is that we also have the O.D.S. Diaphragm Pump (Bulletin 309-R) which has outstanding advantages for handling solutions and slurries. One or the other of these pumps is sure to fit your requirements.



New York 36 — 33 W. 42nd St. Chicago 1 — 221 N. LaSalle St.

Oakland 1 — 2900 Glenside St. San Francisco 11 — 260 Calif. St.

Export Sales Office — New York • Cable — OLIVUNIFILT

FACTORIES:
Hazleton, Pa.
Oakland, Calif.

OLIVER UNITED FILTERS **OUF inc.**

WORLD WIDE SALES, SERVICE AND MANUFACTURING FACILITIES

CANADA
E. Long, Ltd.
Orillia, Ontario
MEXICO & CENT. AMERICA
Oliver United Filters Inc.
Oakland, Calif.
INDIA
Dorr-Oliver (India) Ltd., Bombay
EUROPE & NORTH AFRICA
Dorr-Oliver S.A. Brussels
Dorr-Oliver S.N.c.R.L. Paris

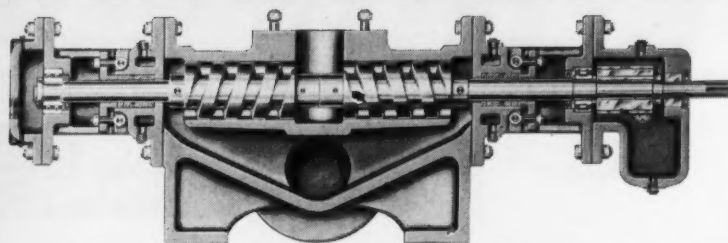
Dorr e.m.b.h. Wiesbaden (16)
Dorr-Oliver Co., Ltd., London, S.W. 1
Dorr-Oliver S.a.R.L. Milano
Dorr-Oliver, N.V. Amsterdam-C
PHILIPPINE ISLANDS
E. J. Nell Co.
Manila
HAWAIIAN ISLANDS
Honolulu
A. R. Duvall

WEST INDIES
Wm. A. Powe — Havana
SOUTH AMERICA & ASIA
The Dorr Co.
Stamford, Conn.
AUSTRALIA
Hobart Duff Pty., Ltd.
Melbourne
SOUTH AFRICA
E. L. Bateman Pty., Ltd.
Johannesburg, Transvaal

When inquiring check CP 3271 on handy form, pgs. 2-3

Complete NEW Line of

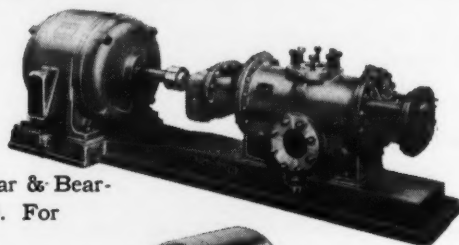
Sier-Bath SCREW PUMPS



NEW EXTERNAL GEAR & BEARING BRACKET TYPE For handling non-lubricating fluids, semi-fluids. Capacities 1-700 GPM; Discharge 1000 PSI for viscous liquids, 500 PSI for water.

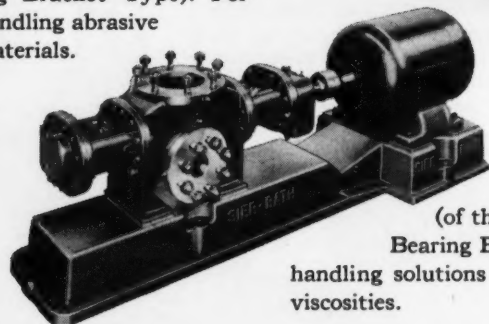
NEW LINER TYPE

(of the External Gear & Bearing Bracket Type). For handling abrasive materials.



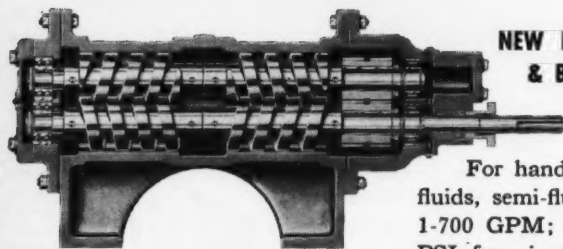
NEW HOPPER TYPE

(of the External Gear & Bearing Bracket Type). For handling solutions of extremely high viscosities.



NEW INTERNAL GEAR & BEARING TYPE

For handling lubricating fluids, semi-fluids. Capacities 1-700 GPM; Discharge 1000 PSI for viscous liquids, 500 PSI for light oils.



WRITE FOR NEW "Screw Pump Reply Sheet"

Read the front side for features and advantages—then, if you wish, fill out the reverse side for a prompt, individually-engineered recommendation!

Sier-Bath GEAR and PUMP CO., Inc.

9260 Hudson Blvd., North Bergen, N. J.

Founded 1905

Member A.G.M.A.



Also Manufacturers of Precision Gears and Flexible Gear Couplings

CONSTRUCTION

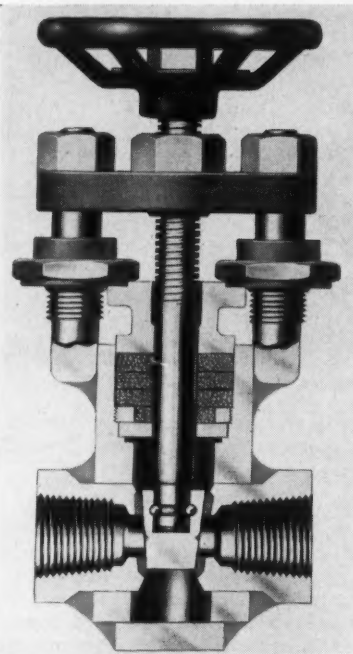
Gate-type valves made for all pressures to 800 psi . . .

for general purposes, they withstand 750°F temperature

Uses: For general purposes, these gate valves withstand all pressure up to 800 psi at 750°F. Valve construction permits quick, easy repair or repacking.

Features: Integral stellite seats never need to be renewed. Dissimilar materials in wedge and seats assure longer life, no galling.

Description: Series #800 steel gate Hancock Weldvalves are available with no bonnet joints, allowing insulation to be run to the edge of the stuffing box. Other features include: 1) wedge of "500 Brinell" stainless steel for tighter fit, 2) self-storing gland between the gland fluts allow plenty of space along the stem for packing, if necessary, 3) perma-



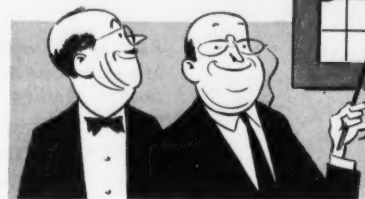
Has no bonnet joint

nent protection of yoke post and gland nut threads, 4) corrosion-resistant back seating permits stuffing box off around the stem when the valve is fully open — repacking under pressure is safe, 5) ball bearing stem-to-wedge connection distributes load evenly, reduces friction, 6) plenty of packing space, 7) interchangeable parts.

(Development of Manning, Maxwell & Moore, Inc., Dept. CP, Watertown 72, Mass. . . . or for more information check CP 3273 on handy form, pages 2 and 3.)

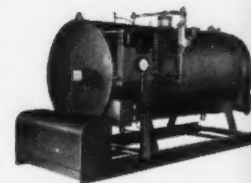
"Since we installed
**STEAM-PAK
GENERATORS***

production's gone up,
steam costs down."



*Steam-Pak's file of installations shows case after case of unbelievable cost savings. These modern automatic power plants high or low pressure are ideal for plant expansion where more steam is required because they can be installed where you need the steam without expensive stack or boiler room construction. Money savers on replacement jobs too!

FREE! 14-page Steam-in-a-package booklet gives specifications, operating data, applications, etc. Get your copy of 201-N today.



YORK-SHIPLEY, INC.

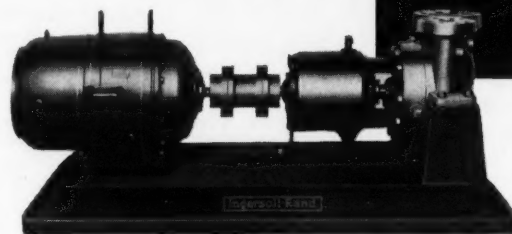
Industrial Division, York, 12, Pa.

Automatic Heat and Power Specialists since 1918

When inquiring check CP 3274 on handy form, pgs. 2-3

for
REAL ECONOMY

SFL
CENTRIFUGAL
PUMPS



. . . in hot liquid service

Ingersoll-Rand Class SFL hot-liquid pumps give you real, long-range economy in five ways—easier installation, complete safety, less maintenance, rugged dependability and higher, sustained efficiency. When equipped with the Cameron Shaft-Seal, these pumps will put an end to your toughest stuffing box problems.

Built in five sizes from 1 to 4 inches, for pressures to 600 psi, temperatures to 800°F and capacities to 1000 gpm, the SFL is part of the complete I-R line of process pumps for every application. Ask your Ingersoll-Rand representative how they can help solve your pumping problems.



Ingersoll-Rand

11 Broadway, New York 4, N. Y.

715-10

Pumps, Compressors and Vacuum Equipment for the Process Industries

When inquiring check CP 3275 on handy form, pgs. 2-3

CHEMICAL PROCESSING

When inquiring check CP 3272 on handy form, pgs. 2-3

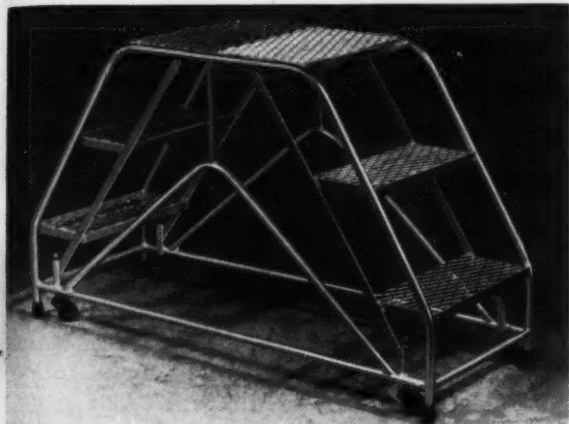
**When no one is on ladder
it rolls easily on
swivel casters . . .**

double-step safety ladder can be used by two or more people at the same time

Uses: Since it can be used by one or more individuals, it is particularly applicable to large assembly jobs and stock room aisles.

Features: When no one is on the ladder, it rolls easily on swivel casters. Weight of a person, however, causes the spring mounted casters to deflect so that rubber-tipped legs engage the floor and the ladder will not roll.

Description: Frame of the model 3-SA double-step safety ladder is made of welded tubular steel. The steps



are expanded steel, which provides a non-slip surface, welded to bar stock for rigidity.

Ladder is 30" high, 17 1/2" wide and 48" deep. Top step has a 20" tread; others 7". Finished in aluminum paint.

(Manufactured by The Ballymore Co., Dept. CP, 139 Pennsylvania Ave., Wayne, Pa. . . or for more information check CP 3276 on handy form, pages 2 and 3.)

**Compresses threads when nut
is turned down
and tightened . . .**

elastic limit is not exceeded, so it can be loosened and removed for repeated use

Uses: Nut has applications on equipment where high temperatures (from -100° to 1600 F), high frequency vibration, tensile strength and positive locking are factors.

Features: Elastic limit is not exceeded, so that nut can be loosened with a wrench and turned off by hand for repeated use.

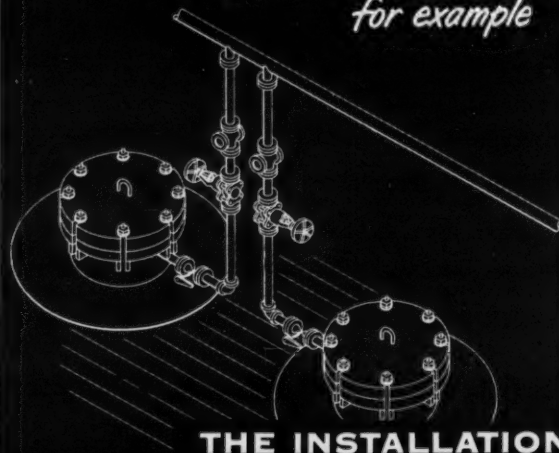
Description: Grooved ring (see illustration) of Klincher Locknut is pressed lightly in place on the crowned neck. It holds the ring in place but does not compress the threads. Then, when the nut is turned down free and tightened, the ring compresses inwardly, tightens the neck threads on the bolt, and elongates the neck sufficiently to apply the load to all of the nut threads.

Klincher Locknut is fabricated of stainless steel in sizes from: 10/32 to 1" 14 with corresponding height at 1/4 to 1-1/16".

(Manufactured by Klincher Locknut Corp., Dept. CP, 2153 Hillside Ave., Indianapolis, Ind. . . or for more information check CP 3277 on handy form, pages 2 and 3.)

Do Your Valves Resist Corrosion Like This?

*... on Digester Gases,
for example*



THE INSTALLATION

Crane Alloy Plug Gate Valves on sulphate digester gas-off service in a large Southern paper mill.

THE HISTORY

Valves in this installation are used to relieve, under throttled flow, the highly corrosive sulphate gases from digesters. Various valves tried gave constant trouble with corrosion, leakage, and difficult operation. Replacements were excessive.

Then Crane 18-8 Mo Alloy Plug Gate Valves were installed on a test basis. After 1 year's service, and again after 2, careful inspection showed hardly a sign of wear or corrosive effects. Meanwhile, the valves operated smoothly; required no maintenance.

So well have Crane valves out-performed and outlasted all others tried, they have been made standard equipment on all digesters.

**The Complete Crane Line Meets All Valve Needs. That's Why
More Crane Valves Are Used Than Any Other Make!**

CRANE VALVES

CRANE CO., General Offices: 836 S. Michigan Ave., Chicago 5, Illinois
Branches and Wholesalers Serving All Industrial Areas

VALVES • FITTINGS • PIPE • PLUMBING • HEATING

When inquiring check CP 3278 on handy form, pgs. 2 & 3

VALVE SERVICE RATINGS

CORROSION-RESISTANCE:

Best results ever had

FEATURES:

*Plug seating good for
throttling and wide open service*

SUITABILITY:

Adopted as standard

MAINTENANCE COST:

No upkeep needed

SERVICE LIFE:

Hardly any wear after 2 years

OPERATING RESULTS:

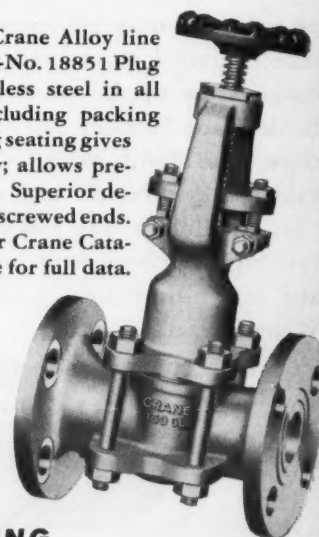
Better control of digester gases

AVAILABILITY:

Regular Crane Catalog item

THE VALVE

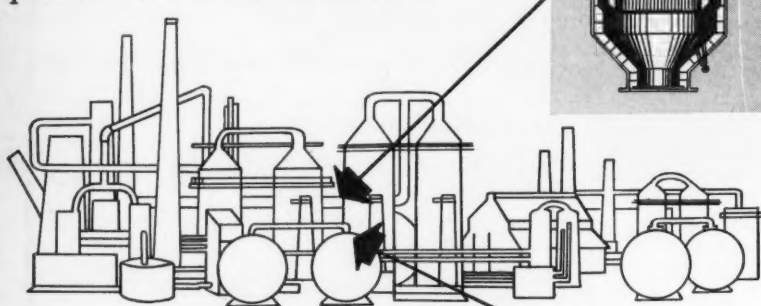
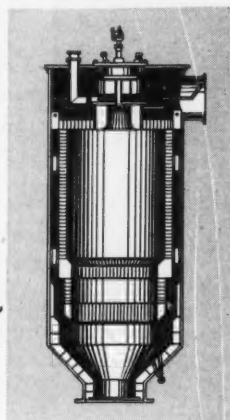
One of the leaders in the Crane Alloy line for severe corrosive service—No. 18851 Plug Gate—with 18-8 Mo stainless steel in all parts exposed to flow, including packing gland. Circular, tapered plug seating gives minimum resistance to flow; allows precise control when throttling. Superior design throughout. Flanged or screwed ends. Also in All-Monel. See your Crane Catalog or Crane Representative for full data.



protect processing efficiency

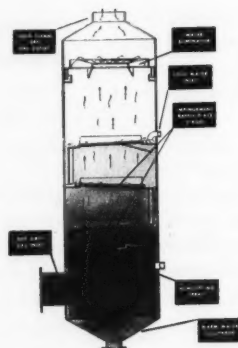
...PEABODY DIRECT FIRED AIR HEATERS

protect processing efficiency by delivering high-temperature gases for processing use over a wide range of pressures. Individual designs are available not only for operation at atmospheric pressure but also higher pressures up to and exceeding 100 PSIG. Each unit is job-engineered and designed to assure compactness, effectiveness, and to minimize field construction. Available in capacities from 1,000,000 to 100,000,000 B.T.U./hr. to meet your operating specifications. Complete details available, Bulletin 600D.



...PEABODY SCRUBBERS, COOLERS AND ABSORBERS

protect processing efficiency by assuring intimate mixture of gas and scrubbing liquid through use of the patented Impingement Baffle Plate. Peabody units are used to cool, clean, and absorb gases, as well as recover valuable by-products and eliminate atmospheric pollution. The Peabody Scrubber offers high efficiency with low pressure drop and low maintenance. Inquiries welcomed. Write for Bulletin 203A.



PEABODY
ENGINEERING CORPORATION

580 FIFTH AVENUE • NEW YORK 36, N. Y.

Manufacturers of all types of combustion equipment, direct-fired air heaters, gas scrubbers, coolers, and absorbers.

OFFICES IN PRINCIPAL CITIES
PEABODY LIMITED • LONDON, S.W.1, ENGLAND

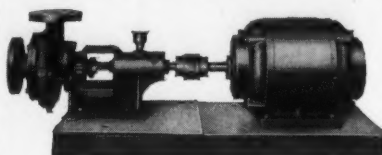
When inquiring check CP 3279 on handy form, pgs. 2 & 3

CONSTRUCTION

**Simple, sturdy construction
combined for pump
service . . .**

process and medium-duty pump
has wide range of uses

Uses: Circulating and transfer service for various process and chemical liquids; filter press service; condensate return and low pressure boiler



feed service, and for handling slurries and other liquids containing moderate quantities of small solids which are in suspension.

Features: Simplicity of design and strong construction result in varied application for this process and medium duty chemical service pump.

Description: Capacities are up to 400 gpm, heads up to 240 feet. Sizes range from 1, 1 1/4, 1 1/2, 2, and 3" discharge.

(Development of the Warren Steam Pump Co., Inc., Dept. CP, Warren, Mass. . . or for more information check CP 3280 on handy form, pages 2 and 3.)

**Offer variety of grades
of plastic pipe, duct
for corrosive service . . .**

includes polyethylene, polyvinyl chloride, rubber-resin

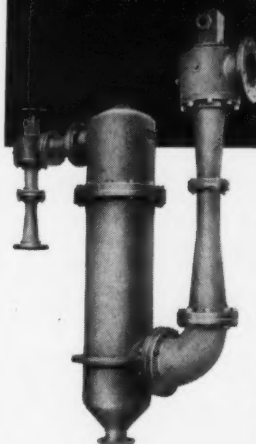
Uses: Complete line of corrosion-resistant plastic piping, tubing, and ducting for handling corrosive liquids and gases to temperatures of 175° F.

Features: Available with complete selection of plastic pipe fittings to simplify installation of entire piping systems, or to add plastic pipe sections to existing pipe systems.

Description: Piping in various grades of polyethylene, plasticized and rigid polyvinyl chloride, and rigid rubber-resin types is furnished in diameters up to 6" nominal pipe size. Polyethylene ducting is available in an assortment of standard sizes ranging up to 22" diameter.

(Complete information on physical and chemical properties and installation procedures is available from the American Agile Corporation, Dept. CP, Post Office Box 168, Bedford, Ohio . . . or for more information check CP 3281 on handy form, pages 2 and 3.)

Any VACUUM you want ELLIOTT Steam Jet EJECTORS



Two-stage unit
with intercondenser

The Elliott line is complete, from the smallest single-stage unit for relatively low vacuum, to huge multi-stage installations that pull extremely high vacuum.

Elliott engineers, experienced in the widest range of ejector applications, are always available for discussion of vacuum problems.

Bulletins on request.

ELLIOTT Company
Industrial Process Dept.
JEANNETTE, PA.
DISTRICT OFFICES IN PRINCIPAL CITIES

When inquiring check CP 3282 on handy form, pgs. 2 & 3

**"The easiest Operating
FORK TRUCK
there is!"**

This **NEW**
LEWIS-SHEPARD SPACEMASTER®

Electric Fork Truck has
a Magnetic Personality . . .

MAGNETIC CONTROLS PRACTICALLY RUN THE TRUCK FOR ME. I GET SPEED, DIRECTION AND BRAKING ALL WITH ONE LEVER. INCHING OPERATIONS EVEN WITH FRAGILE LOADS ARE A CINCH.

I SIMPLY THROW THE CONTROL HANDLE TO FULL SPEED FORWARD OR REVERSE AND GET A SMOOTH, TIMED ACCELERATION. THE MAGNETIC CONTROL WITH FOUR SPEEDS FORWARD AND REVERSE GIVES ME AND MY LOAD A MUCH SMOOTHER, SAFER RIDE.

THEY'VE TAILORED THE COUNTERWEIGHT TO PUT IT WAY BACK, DOWN LOW WHERE IT COUNTS.

I GET MORE STABILITY, MANEUVERABILITY, AND A LIGHTER WEIGHT TRUCK, ALL AT THE SAME TIME.

FAST LIFT! IT GIVES ME MORE LIFTING SPEED THAN ANY ELECTRIC TRUCK I'VE SEEN.

ANOTHER THING . . . YOU NEVER HAVE TO GET UNDER THAT TRUCK. EVERY PART IS EASY TO GET AT. THERE ARE ABSOLUTELY NO UNDER TRUCK ADJUSTMENTS.

PLUS 84 OTHER ENGINEERING ADVANCEMENTS

GET THE
NEW SPACEMASTER
CATALOG

Since 1915
The "MASTER" Line
LEWIS-SHEPARD PRODUCTS, INC.
130 WALNUT STREET, WATERTOWN 72, MASS.
Milwaukee Plant — CRAWFORDSVILLE, IND.

LEWIS-SHEPARD Products, Inc.
130 Walnut St., Watertown 72, Mass.

Please send me the SPACEMASTER catalog

Please have an I-S representative call

Name _____

Company _____

Street _____

City _____ State _____

Sales Service in Principal Cities See "Trucks, Industrial" in your Yellow Pages Book

When inquiring check CP 3283 on handy form, pgs. 2 & 3

CHEMICAL PROCESSING

**No stretch, no slip, no vibration,
yet link-belt can withstand
long, tough life . . .**

V-links of woven cloth impregnated with crude rubber result in excellent fit

Uses: For applications requiring detachable V-link belts to be used with high-speed systems.

Features: Pre-stretched, non-slip V-links contain more plies than belts of similar types, manufacturer reports, and are made from tough, woven cloth impregnated with top-grade, heat- and oil-resistant crude rubber for better fit and texture.

Description:

Uniform in camber and dimension, belts use convex stud heads to assure greater strength and longer life. Other features prevent distortion after usage and permit smooth, vibration-free service at top speeds in either direction.



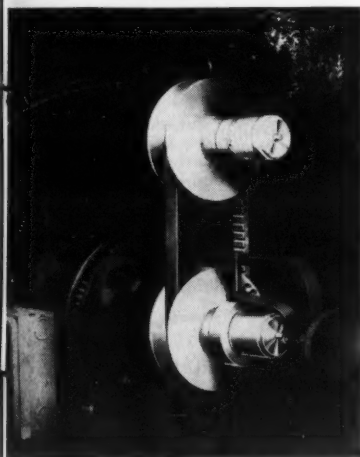
Made with rubber, they do not slip

(Development of The Brammer Co., Dept. CP, 684 Broadway, New York 12, N. Y. . . . or for more information check CP 3284 on handy form, pages 2 and 3.)

**Variable-speed pulley offers
9 to 1 speed variation
on fixed center . . .**

speed change accomplished by axial adjustment of retainer ring fixed on pulley hub

Uses: For power applications requiring maximum speed variation. Combination with standard Roto-Cone variable-pitch pulley and standard Vari-speed belt permits speed-change ratio up to 9 to 1.



Variable-speed pulley is manually operated

Features: No adjustable motor base is needed with this drive.

Description:

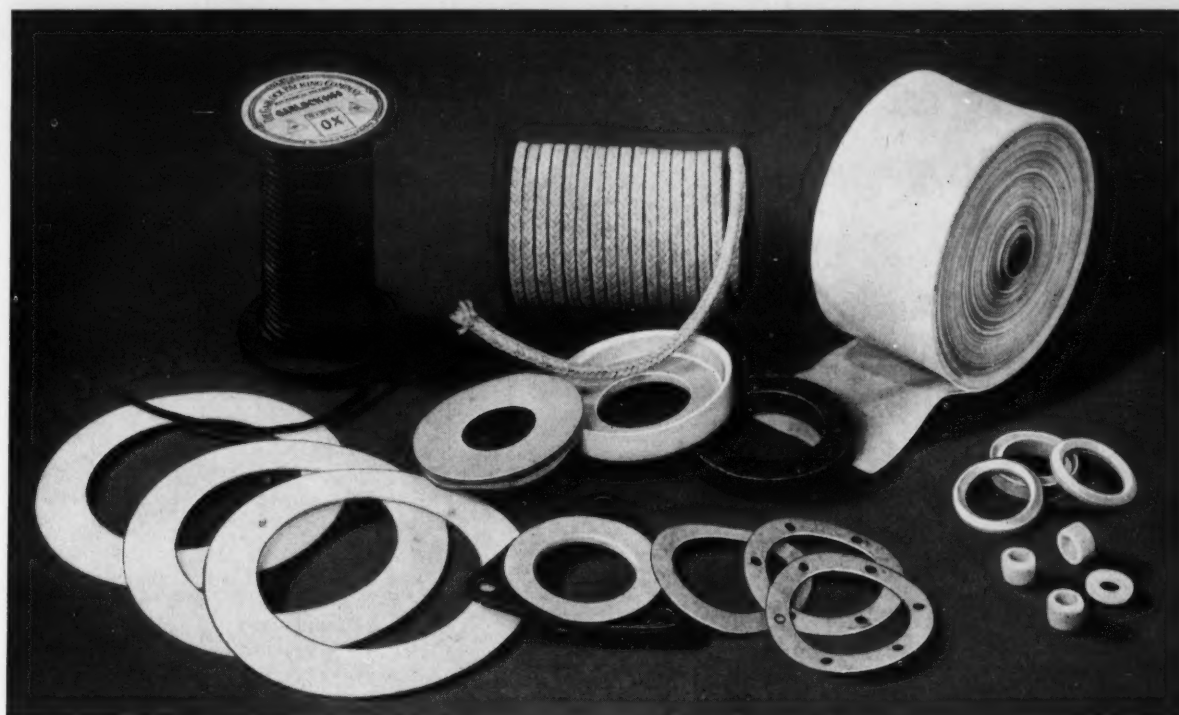
Speed change is accomplished by axial adjustment of ball bearing mounted retainer ring fixed on pulley hub of manual Roto-Cone. This causes pulley to change pitch diameters. Since manual and self-adjusting Roto-Cones are on fixed centers, the belt length remains constant;

and variation of one pulley automatically affects the other an inversely proportionate amount.

Manually operated variable-pitch motor pulleys are available for fractional to 15 hp requirements.

(Product of Gerbing Mfg. Corp., Dept. CP, Northbrook, Ill. . . . or for more information check CP 3285 on handy form, pages 2 and 3.)

JUNE, 1952



These Teflon* Packings and Gaskets

Solve the problem of sealing against acids, organic solvents, and alkalies

Garlock packings and gaskets made of TEFLON are entirely unaffected by acids and are completely resistant to all alkali solutions and organic solvents, such as:

Concentrated Sulphuric,	Hydrogen Fluoride
Chromic, Nitric and	Concentrated Hydrogen
Hydrofluoric Acids	Peroxide
Bromine	Oxygen
Chlorine	Sulphur Chloride
Fluorine	Sulphur Oxychloride

TEFLON packings and gaskets are recommended for use at operating temperatures from below -90°F . up to 500°F . Within this wide temperature range

*THE DU PONT COMPANY'S TRADEMARK

these packings and gaskets retain their inherent toughness, have a low coefficient of friction, and do not react with metals of construction.

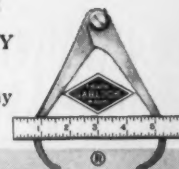
Wherever resistance to chemicals is required, specify GARLOCK's TEFLON packings for use on valves, pump rods or shafts; TEFLON gaskets for all types of flanged joints.

We can mold, machine or form TEFLON in a wide variety of shapes and sizes. When you need finished TEFLON parts contact Garlock.

Write for TEFLON Catalog today!

THE GARLOCK PACKING COMPANY
PALMYRA, NEW YORK

In Canada: The Garlock Packing Company
of Canada Ltd., Toronto, Ont.

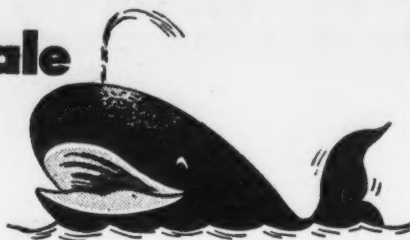


GARLOCK

**PACKINGS, GASKETS, OIL SEALS,
MECHANICAL SEALS,
RUBBER EXPANSION JOINTS**

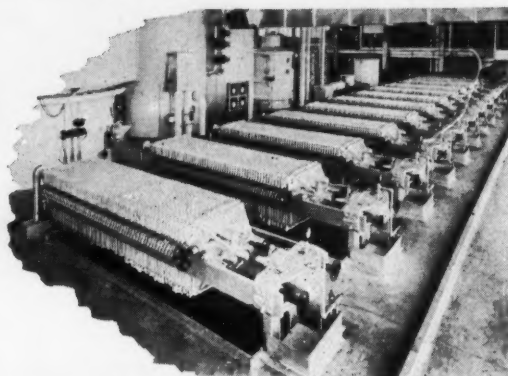
When inquiring check CP 3286 on handy form, pgs. 2-3

That's a Whale of a Lot of Filtration



Year after year the process industries of America install an average of 200,000 square feet of New Shriver Filter Press Capacity

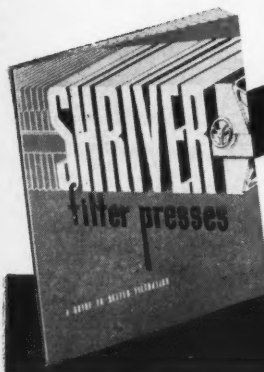
because
**SHRIVER'S
Got It
Every Way**



Whether it's adhesives or amines, electrolytes or emulsions, casein or colors, mercaptans or mucilage, resins or rosin, or hundreds of other process materials that need improvement through filtration—the Shriver Filter Press can do the job better, at lower over-all cost. It's more versatile, more economical—a sound investment in every way.

Straight Facts Prove Shriver Filter Presses

- Are lowest in cost per sq. ft. of filtering area
- Filter any material, even thick or viscous
- Recover solids, reasonably dry, firm, easy to handle
- Wash, extract, thicken, steam out, melt, redissolve
- Operate at any pressure or temperature
- Clarify, bleach, decolorize, deodorize, germproof
- May be made of any metal, wood, rubber, plastic



FIRST IN PRESSURE FILTRATION

Get the Facts

Get this New Catalog

T. SHRIVER & COMPANY, Inc.

846 HAMILTON ST., HARRISON, N. J.

When inquiring check CP 3287 on handy form, pgs. 2 & 3

CONSTRUCTION

**2 circuit time switch
for 60 sec to 5 hr
periods . . .**

operates on power up to 28 amp,
250 v AC only

Uses: For time control of heavy duty electrical circuits where two circuits are involved. May be used where it is necessary to break circuits at different time intervals, or simultaneously at end of same time interval.

Features: In models 6700 and 6900, first circuit may be broken at predetermined time, before breaking second circuit at the end of total time period.

In model 6800, both circuits are broken simultaneously at the end of total time period.

Description: Models 6700 and 6800 may be used with respective power supplies of 20 amp 125 v, 1 hp and 10 amp, 250 v, AC only. Model 6900 operates on 28 amp, 250 v AC only.

Switches may be used to time periods ranging from 60 seconds to 5 hours.

Units are provided with splash proof and dust proof housing.

(Product of M. H. Rhodes, Inc., Dept. CP, Hartford, Conn. . . . or for more information check CP 3288 on handy form, pages 2 and 3.)

**Brazing is simplified
with alloy made of
Cu, P, and Ag . . .**

extreme fluidity and good wetting properties claimed

Uses: For brazing of copper, brass, and bronze.

Features: Copper-phosphorous — silver alloy has extreme fluidity and good wetting properties for quick penetration of tight-fitting joints for strong, ductile bonds.

Description: Phos-Silver is especially suited for applications where brazing temperatures are critical and can be used with any of the common brazing methods of copper or copper alloys. Low brazing temperature (1225-1275°F) reduces brazing time on heavy sections that absorb large quantities of heat. On fine work or low melting brass, where there is danger of overheating, it provides an extra margin of safety. No flux is needed in copper-to-copper brazing.

(Development of Westinghouse Corp., Dept. CP, 306 Fourth Ave., Pittsburgh 30, Pa. . . . or for more information check CP 3289 on handy form, pages 2 and 3.)

For
HANDY REFERENCE

Beach-Russ
Rotary
HIGH VACUUM PUMPS
AIR COMPRESSORS
GAS BOOSTERS
LIQUID PUMPS

Condensed Data
on the Complete Beach-Russ Line of
Rotary Pumps

WRITE FOR YOUR COPY . . . or for as many copies
as you may need for distribution in interested departments.

BEACH-RUSS COMPANY

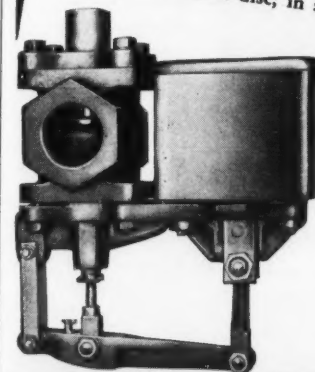
46 CHURCH STREET • NEW YORK 7, N. Y.

When inquiring check CP 3290 on handy form, pgs. 2 & 3

JOHNSON Direct
Acting Solenoid Valve — for 150 lbs.
Differential Pressure . . .

You can get a solenoid valve that operates under differential pressures up to 150 lbs., temperatures to 400°F., without pilot valves. It ends the time lag and wire-drawing that come with slow opening pistons. It offers unusual possibilities for all types of automatic, or remote, flow control. Johnson Solenoid Valves are available for normally closed or normally open service; with stainless steel valve and seat or Jenkins disc; in sizes from 1/2" to 3".

Write for
Bulletin "V"



WHERE CAN
YOU USE THIS
AUTOMATIC VALVE?

- No pilot valves
- Temperatures to 400°F.
- Differential Pressures to 150 lbs.
- Immediate full flow
- Heavy duty construction

The Johnson Corporation

826 WOOD ST.

THREE RIVERS, MICHIGAN

When inquiring check CP 3291 on handy form, pgs. 2 & 3

CHEMICAL PROCESSING

Threadless fittings save time and labor when joining plastic or steel pipe . . .

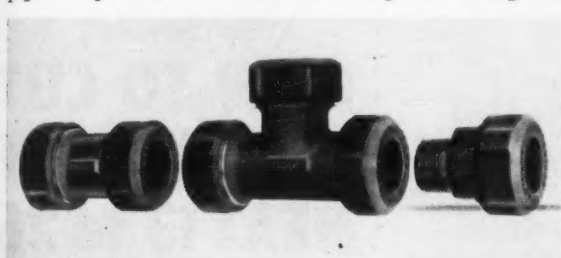
1) stab pipe into fitting, 2) tighten with wrench — pressure-tight joint is completed

Uses: Joining standard-size plastic or steel pipe.

Features: Save time and labor.

Description: Telsco brand name consists of a line of malleable iron threadless fittings. Ten different types and 111 different sizes of fittings are offered. Fittings available are couplings, adapters, 90 elbows, adapter elbows, tees (straight and reducing), tees (with threaded branches), reducers and increasers. Size range is 1/2 through 2".

Fittings are factory-assembled and read to use on plain-end pipe. Pipe end is inserted into fitting, and fitting end



Join either plastic or steel pipe

nuts tightened with an ordinary wrench. Rubber gaskets inside fittings serve to protect pipe from strains of contraction, expansion and vibration. Fittings are reported to hold joint permanently tight and are not affected by properties of air, water, gas, gasoline, butane or propane. They will withstand temperatures from 250° to 275°C.

(Available from Texas Lawn Sprinkler Co., Inc., Dept. CP, Telsco Fittings Division, 5422 Redfield St., Dallas, Tex. . . or for more information check CP 3292 on handy form, pages 2 and 3.)

Roof coolant is silver blanket which deflects up to 75% of sun's radiant heat . . .

users have found as much as 26° improvement in roof and below-roof temperatures

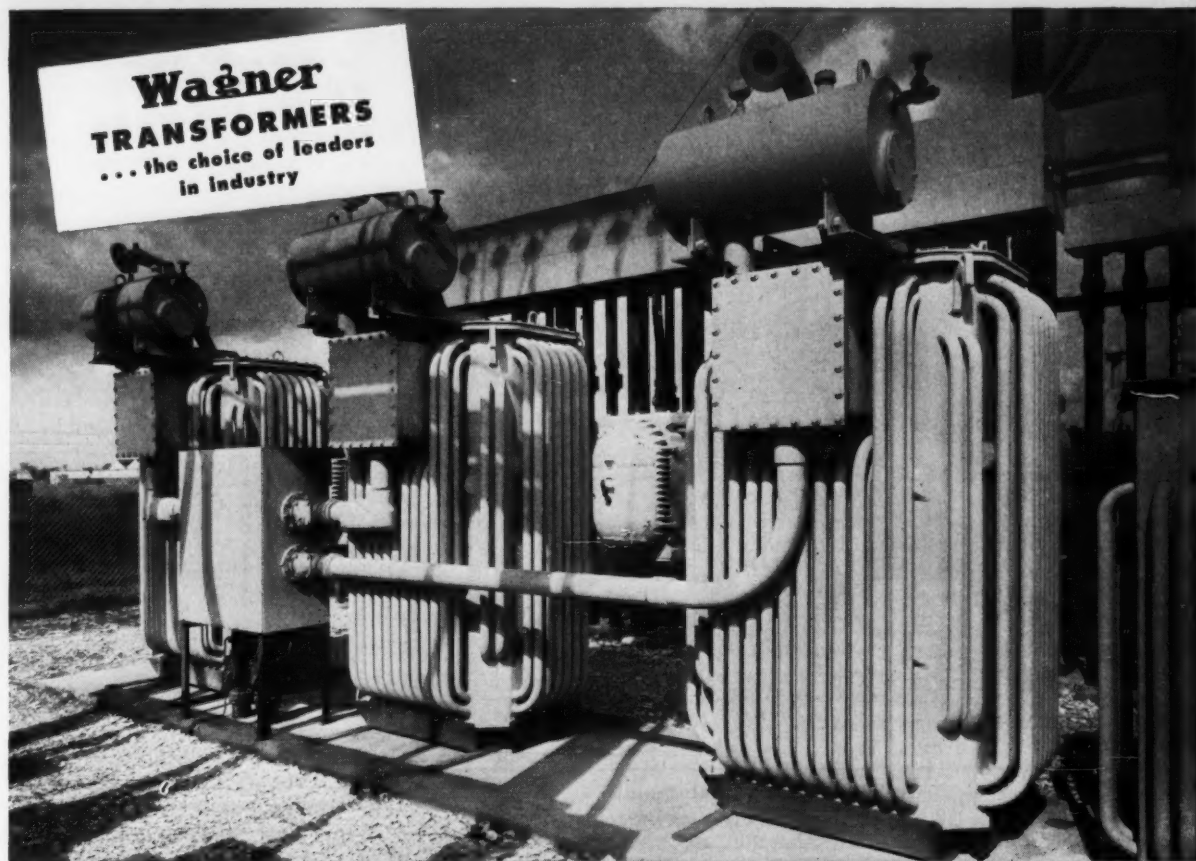
Uses: To reduce temperature within roof structure as well as lower temperature in below-roof working zone. Also prevents rapid drying out, cracking, and leaking of roof.

Features: Reduces below-roof temperatures by deflecting up to 75% of sun's radiant heat. Tests show that when it is 96 degrees in sun, temperature within roof structure will build up to 140 degrees, with temperature of 116 degrees below-roof. It is stated that when coolant was applied as much 26 degree improvement was found in both roof and below-roof temperatures.

Coolant is said to help retain flexibility needed for expansion and contraction due to sudden temperature changes.

Description: "Coolerant" consists of large flakes of metallic aluminum applied with special liquid bond. Coating is said to provide a complete, seamless, silver blanket which throws back sun's heat. Coating may be applied with brush or spray by unskilled labor.

(Product of Tropical Paint and Oil Co., Dept. CP, 1210-52 W. 70th St., Cleveland, Ohio. . . or for more information check CP 3293 on handy form, pages 2 and 3.)



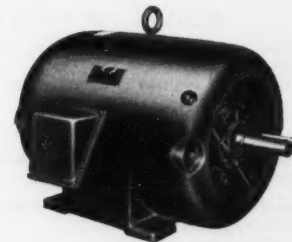
Wagner Transformers power the production of Rohm & Haas "Chemicals for Industry"

Production of "Chemicals for Industry" by the Rohm and Haas Company, makers of famed Plexiglas, is not a simple one-plant operation. The products of one of their plants may have no resemblance to the commercial products into which they are integrated at another plant. The natural raw material found in Texas, for instance—the processed chemicals manufactured there—and Plexiglas, an end product manufactured in another plant—are all part of a great modern production chain.

Power for production—with Rohm

and Haas as with any modern industry—is provided by electricity. The manufacture of chemicals in the Rohm and Haas plant in Deer Park, Texas, is powered by Wagner Transformers and Wagner Motors. Wagner transformers in the main substation take energy at 69,000 volts and feed it to the low voltage substation at 2400 volts. The low voltage substation of Wagner transformers (illustrated above) in turn furnishes 480 volts to motors and to small air-cooled Wagner transformers which furnish 120 volts for lights and other single phase loads.

Wagner engineers are qualified to specify the proper transformers and motors for your requirements as well. Consult the nearest of our 32 branch offices or write us.



WT50-4A

WAGNER ELECTRIC CORPORATION
6359 Plymouth Ave., St. Louis 14, Mo., U.S.A.

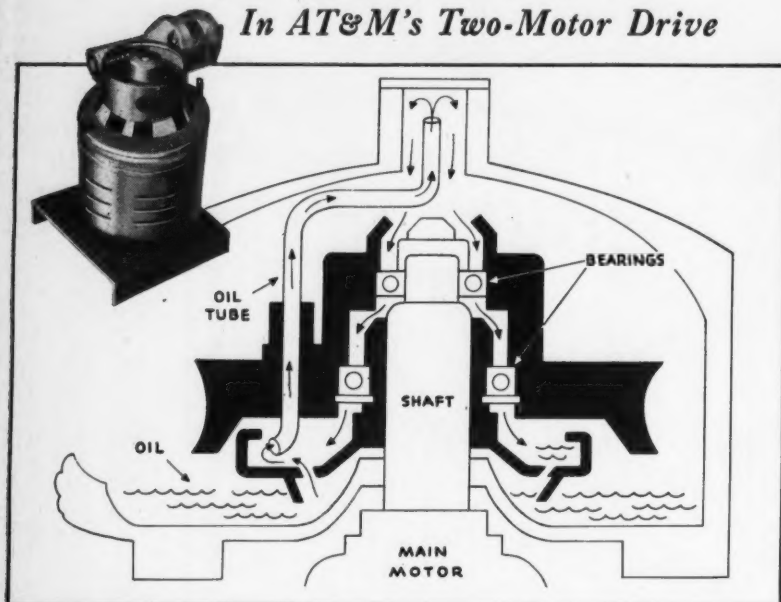
ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES
AUTOMOTIVE BRAKE SYSTEMS — AIR AND HYDRAULIC

BRANCHES IN 32 PRINCIPAL CITIES

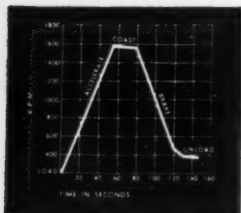
When inquiring check CP 3294 on handy form, pgs. 2 & 3

NOTHING LIKE IT! NO PUMPS... NO VALVES

*Simple, Positive Oiling System
In AT&M's Two-Motor Drive*



Eliminating pumps and check valves, AT&M's built-in oiling system is simplicity itself. Oil in reservoir is scooped by the revolving baffle, then passes through port and up through tube, spilling out in sight glass at top. It then flows through bearings and back to reservoir. Another application of centrifugal force that assures positive, trouble-free performance!



AUTOMATIC PUSH-BUTTON TIMER CUTS COSTS, BOOSTS EFFICIENCY

AT&M's automatic cycle timers do away with clutches, high-cost, energy-wasting fluid drives. Timer holds centrifugal at loading speed until loaded, accelerates it to maximum, cuts off current for "coasting" period (see chart), then brings it to a quick, sure unloading speed. The loading is done with basket turning in same direction.

PROVE TO YOURSELF

how centrifuging can benefit you. Send us a sample of your material for centrifuging to your specifications, or rent an AT&M laboratory centrifugal for your own tests at a nominal fee. Send for free booklet.



FREE
Illustrated Booklet

AMERICAN TOOL AND MACHINE COMPANY
1412 Hyde Park Avenue, Boston 36, Mass.

Please send me my free copy of the new AT&M booklet "Centrifugal Force." I am interested in the following processes:

Separation ☐ Extraction ☐ Dehydration ☐ Clarification ☐ Coating ☐ Filtration ☐
Draining ☐ Thickening ☐ Impregnation ☐ Sedimentation ☐

SAVE TIME, SPACE
AND COSTS WITH

A.T. and M.
CENTRIFUGING

Name.....Title.....
Company.....
Street.....
City.....Zone.....State.....

When inquiring check CP 3295 on handy form, pgs. 2 & 3

CONSTRUCTION & MAINTENANCE

Versatility and simplicity are highlights of air control valve...

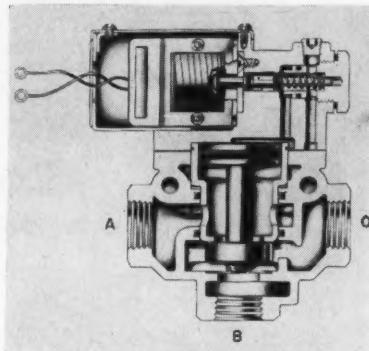
main valve is completely springless, which eliminates common source of valve failure

Uses: For directional control of air pressure. Main or "master" valve portion can be operated either 2-way or 3-way, normally open or normally closed to pressure, without any internal change.

Features: Main valve is pressure operated, through piston-operated poppet. Pressure serves to actuate poppet

and to return it to its normal position. Main valve is completely springless, which is said to eliminate common source of valve failure.

Maintenance is further simplified because piston-poppet assembly fits into removable cartridge. This cartridge can be replaced simply by removing the



Interchangeable ports permit 2-way or 3-way control

cover (in this case, the pilot head), without disturbing main piping connections.

Description: As seen in illustration, port A is inlet for normally closed operation, exhaust port for normally open use; port B is inlet for normally open uses, exhaust for normally closed. Insertion of pipe plug in exhaust port (either A or B) converts valve for 2-way use. Port O is outlet in any case, normally to air cylinder.

Only two sizes of cartridge-and-piston-poppet assemblies are needed to service all five main bodies from 3/8 through 1 1/4" IPS. One size of pilot head fits all five sizes of "master" valve.

Within pilot head is 3-way pilot valve, which is solenoid operated. This controls main valve by introducing or exhausting pressure from chamber above piston. Pressure within valve is normally taken from pressure side of "master valve" and it is exhausted to the exhaust side of the "master" valve.

As shown in sectional view, pilot valve also is a poppet valve. Its stem is actuated by plunger of solenoid and returned by spring. On 60 c current, valve will shift in less than 1/20 sec. Valve can also be supplied with DC solenoid.

(Product of Hannifin Corporation, Dept. CP, 1150 S. Kilbourn Ave., Chicago 24, Ill. . . . or for more information check CP 3296 on handy form, pages 2 and 3.)

Short overall length, but high power output featured in slim electric motor...

flat design permits application of unit in totally enclosed areas of piping or vent

Uses: As a power source in ventilating and air moving installations where motor itself is to be mounted within the piping or vent.

Features: Unique frame design allows installation in "tight" places, while motor construction provides much



HOW TO CUT BELOW-ROOF HEAT 13° to 26° immediately!

Brush or spray on Tropical Roof Coolerant and feel the difference at once! This non-staining, bright metallic coating reflects up to 70% radiant heat away from the roof, cuts below-roof temperature up to 26° to give hot-weather comfort. Anyone can apply Tropical Roof Coolerant quickly, easily, at low cost. Do it NOW!

LENGTHENS ROOF LIFE, TOO!

Bright, seamless Roof Coolerant metallic shield prevents drying action of summer heat, keeps roof flexible, prevents cracks and leaks. Adds years to roof life!

FREE! Complete information, literature, on Tropical Roof Coolerant for comfort and roof protection THIS SUMMER. Write today!

Since 1883

HEAVY-DUTY MAINTENANCE PAINTS

TROPICAL
SUBSIDIARY OF PARKER RUST PROOF COMPANY



THE TROPICAL PAINT & OIL CO.
1128-1278 W. 70th St.
Cleveland 2, Ohio

When inquiring check CP 3297 on handy form, pgs. 2-3

CHEMICAL PROCESSING

greater horsepower per size than conventional motors, manufacturer reports.

Description: "Wafer" electric motors are available in ratings from 1/20 through 5 hp, in speeds from 450 to

3600 rpm, poly-phase or single phase, and are quiet running. Mounting may be done 1) by means of "ears", 2) drilled and tapped holes in endbells, or 3) by any other requirements of the user. Can be mounted in any position — shaft up to down. Fan can be connected directly to the motor's output shaft,

Run quietly; are highly efficient

thus eliminating the need for pulleys, belts, brackets, or fan shafts.

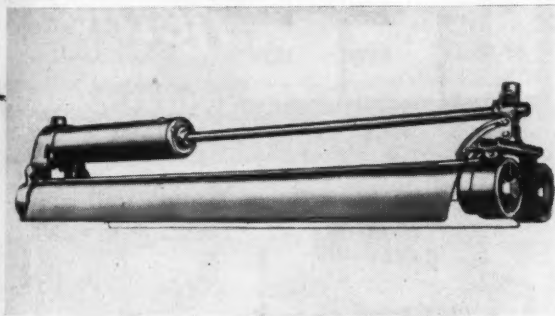
(Development of Reuland Electric Co., Dept. CP, Alhambra, Calif. . . . or for more information check CP 3298 on handy form, pages 2 and 3.)

Explosion-proof fixtures for Slimline lamps are available . . .

end of fixture can be dropped down for re-lamping to permit end-to-end mounting

Uses: Explosion-proof lighting fixtures for fluorescent, 36-watt, 48-inch T-12 Slimline lamps.

Features: One end of fixture is fitted with a toggle arrangement, allowing that end to be dropped down sufficiently to clear the adjacent fixture.



Explosion-proof fixtures for Slimline lamps

This facilitates replacement of lamps and avoids interference when fixtures are placed in a continuous row. Also an attachment is available with which the fixtures can be mounted at an angle of 45 degrees.

Description: Fixtures may consist of two, three, or four lamp-enclosing tubes of Pyrex glass. These tubes are sealed into cast aluminum end fittings containing the sockets. Above lamp tubes is mounted a cast aluminum ballast housing. Fixtures are supplied with sheet aluminum reflectors which are mounted between the lamp tubes and ballast housing.

(Product of Crouse-Hinds Company, Dept. CP, 1347 Wolf St., Syracuse, N. Y. . . . or for more information check CP 3299 on handy form, pages 2 and 3)

JUNE, 1952

VINYL COATINGS ENTER NEW ERA

Revolutionary Prufcoat Primer P-50 Makes it Possible to Apply Vinyl Coatings by Simple "Prime and Paint" Procedure — Just Like Ordinary Paints

Here at last is the Big News everyone concerned with maintenance painting has been waiting for . . . the first primer development in the history of protective coatings that takes vinyl base paints out of the "specialty" category. No longer is it necessary to use special application techniques in order to take full advantage of the outstanding chemical resistance provided by vinyl coatings.

NEEDS ONLY ROUTINE SURFACE PREPARATION AND DRIES FAST

Prufcoat Primer P-50 now makes vinyl coatings completely practical for general maintenance painting. Routine wire-brushing to remove flaking rust and other loose corrosion products is normally the only surface preparation necessary. Revolutionary Primer P-50 comes ready-mixed and applies easily by brush or spray. The primed surface air-dries to the touch in minutes, can take final top coat application in a matter of hours.

POSITIVE ADHESION IS ASSURED, UNDERFILM CORROSION CONTROLLED

Prufcoat Primer P-50 bonds securely to either old or new metal, or to previously painted surfaces, and its special nature guarantees firm adhesion of top coats. Vinyl coatings as well as oil

and oleoresinous paints actually weld themselves to a Prufcoat primed surface. In addition, the highly inhibitive properties of amazing Primer P-50 control underfilm corrosion, eliminating all danger of premature failures.

A SINGLE PRIMER FOR EITHER VINYL OR CONVENTIONAL PAINTS

Prufcoat Primer P-50 is truly the ideal primer for all metal surfaces, whether corrosion conditions are such that the heavy duty protection of vinyl top coats is required or whether a conventional paint finish is to be used. Think of the savings in time, trouble and expense this means . . . one easy, sure-fire priming system for all metal surfaces.

Get full information without delay on this important primer development that now makes possible a simple yet positive "Prime and Paint" procedure throughout your plant. You will be truly amazed at what Prufcoat Primer P-50 can mean to you in the terms of easier application, better protection, and lower costs — in the maintenance painting of all structural steel, tanks, pipes, ducts, machinery and equipment. Send for Prufcoat Technical Bulletin No. 015.

Write today!



Grueling Salt Spray Test Proves Prufcoat Performance

Tough field and laboratory tests in plant after plant report "100% performance" for Prufcoat Primer P-50. For instance, in the laboratory of one of America's leading chemical companies, steel test panels were prepared with one coat of Primer P-50 and one top coat of "A" Series Prufcoat. The painted surfaces were then scored to expose the bare

metal and the panels subjected for 672 hours to a 20% salt spray, the acidity of which was adjusted to pH 3. The report states: "Absolutely no failure anywhere on the Prufcoat primed and painted surfaces, and no corrosion creepage under the coatings at the score marks."

PRUFLOAT LABORATORIES, INC.
50 East 42nd Street, New York 17, N. Y.

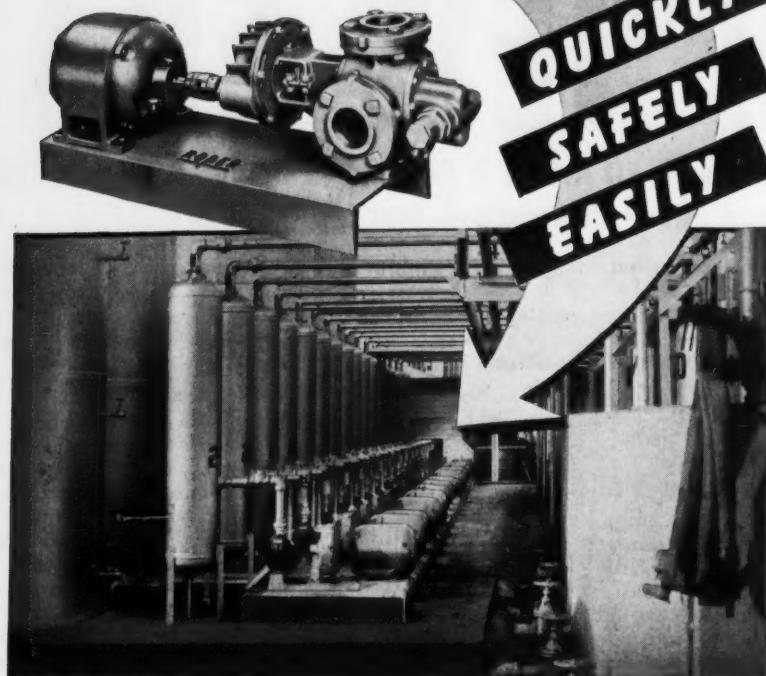
To Save Time, Trouble and Money..
Just "PRIME and PAINT" with PRUFLOAT

When inquiring check CP 3300 on handy form, pgs. 2 & 3

Move

**PAINTS
INKS
VARNISHES
THINNERS
SOLVENTS**

**QUICKLY
SAFELY
EASILY**



● A well-known varnish plant depends on this bank of Roper 3600 Series pumps to keep production humming. It is a typical example of Ropers on the job, for there are many similar installations. Some pump liquids even thicker than varnish; others pump liquids as thin as gasoline. The Roper 3600 Series is available in various combinations of pump sizes, gear reduction ratios, and motor sizes to provide unusual adaptability to innumerable pumping needs in petroleum, processing, and general industries. Capacities of 40, 50, 70, 90, and 100 g.p.m. at 60 lbs. p.s.i. are available.

FEATURES THAT ASSURE DEPENDABILITY

Long service life is provided by hardened steel reduction gears running in oil on anti-friction bearings... a flexible coupling connects gear reduction and motor to eliminate thrust or radial loads... pumping gears operate in axial hydraulic balance... steel shafts run in high-lead bronze bearings... split packing gland in an extra-deep packing box facilitates servicing. You'll want *all* the facts on compact, quiet-running Ropers so send the coupon today!

ROPER
Rotary Pumps



GEO. D. ROPER CORPORATION
746 Blackhawk Park Avenue, Rockford, Illinois

- ☐ Please Send Catalog.
☐ Have a Roper Representative Call

NAME _____
ADDRESS _____
CITY _____
COMPANY _____

When inquiring check CP 3301 on handy form, pgs. 2-3

CONSTRUCTION

Prepares metals for painting in matter of minutes . . .

may be applied by dipping, spraying or wiping

Uses: Surface preparation of steel, cast iron and zinc for application of paint or enamel. Some aluminum alloys are stated to respond to the treatment, while others do not.

Features: Effective on surfaces which are not clean enough for phosphatizing in the usual manner. May be applied in a variety of ways — dipping, spraying or wiping — and with simple apparatus.

Description: Phospray is designed to produce a tight bond between the metal and a paint or enamel. Time loss between phosphatizing and painting is usually a matter of minutes — being determined entirely by the speed with which thinners evaporate.

Material, in concentrated form, is shipped in carboys and diluted with from one to three parts of a suitable volatile thinner. The thinners advised are the customary type used in lacquers, excluding those which have more than traces of petroleum thinners. Coal tar thinners and chlorinated solvents are not satisfactory. Rust must be removed.

(Available from The Du-Lite Chemical Corp., Dept. CP, 1000 River Road, Middletown, Conn. . . or for more information check CP 3302 on handy form, pages 2 and 3.)

Incorporate 11 features in versatile intercom system . . .

units can include all or any combinations

Uses: For inter-office or industrial communications systems.

Features: Units can be delivered to include all 11 features or any combination required. More units and features may be added as needed.

Description: Talk-A-Phone's eleven developments include: busy signal, Redi-power, dynasonic performance, multi-magic selector, privacy handset, earphone, right-of-way relay, hold-automatic pushbuttons, silent touch bar, uni-trans, and conference features. By adding features as needed, it is possible to use a single 30-station unit with other sets which may require only 12-station capacity.

(Development of Talk-A-Phone Co., Dept. CP, 1512 S. Pulaski, Chicago, Ill. . . or for more information check CP 3303 on handy form, pgs. 2 & 3.)

LENAPE
STUDDING OUTLETS
offer many advantages

Curved Stud-
ding Outlets or
Pads in ASA sizes
and standards pro-
vide reinforcement of
the shell opening. Stud-
ding outlets, naturally
short in height and pro-
viding reinforcement of
the opening, have design
appeal, economy in
price and fabrication, and advantages in use.

Important applications include interdeck access openings on small diameter towers or columns, boiler mountings, clean-out or observation ports, and similar uses in close-clearance locations.

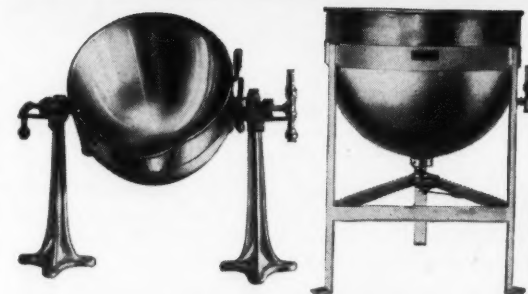
Sizes 16" and larger (even to 30" I.D.) are ideal access openings and in 18" and 20" sizes are the most modern and economical manway for LPG tanks.



When inquiring check CP 3304 on handy form, pgs. 2-3

FOR EVERY PROCESSING NEED

LEE Kettles
WHERE
CORROSION-RESISTANT
EQUIPMENT IS NEEDED



Descriptive Bulletins on Request

LEE METAL PRODUCTS CO. INC.
418 PINE STREET . . . PHILIPSBURG, PA.

ALL LEE KETTLES ARE MADE TO A.S.M.E. CODE

When inquiring check CP 3305 on handy form, pgs. 2-3

CHEMICAL PROCESSING

**Various combinations give flexibility
to strong pushbutton units
with 5 color rings . . .**

double-break contacts close with rolling action to minimize wear, misalignment

Uses: For push button control of various machine tool applications.

Features: Construction provides increased flexibility of application since basic units can be arranged in various combinations to meet all special as well as standard requirements. Oil-tight, units are designed on building-block principle, feature self-a-line contacts with rolling closing action, and removable color rings for pushbutton identification. Manufacturer reports that two operators, five color rings, and two contact blocks can be arranged in any of twenty different combinations.

Description: Strong lightweight aluminum enclosures are finished in machine-tool gray. Offered in 1, 2, 3, 4, 6, and 9 button stations, they are fully oil-tight and provide maximum dust protection. The rubber gasket will not deteriorate with age nor stick to the enclosure.

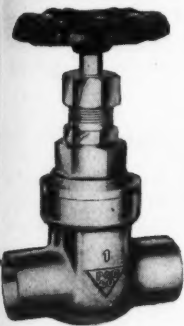
Depth of the unit enclosures is 3 7/32", and a standard pushbutton extends 1/2" beyond the case. Other dimensions depend upon the number of stations in the unit. Contacts are rated at 115, 230, 460, and 575v.

"Self-a-line" double-break contacts are placed at an angle so they close with a rolling action. The operating lever strikes a curved surface on the movable contact, assuring retention of alignment. Movable contact thus adjusts itself to wear, misalignment, etc so contacts always break simultaneously. Longer life is realized because wear is distributed evenly over both contact surfaces, covered with heavy silver overlays.

(Development of General Electric Corp., Dept. CP, Schenectady 5, N. Y. . . . or for more information check CP 3306 on handy form, pages 2 and 3.)

**Soldering temperatures
will not warp seat
of gate valve . . .**

sturdy construction features prevent possibility of twisting or bending



Gives good service in soldered line

Uses: For hot and cold water lines or low pressure steam. It can be used in plumbing, heating, and air-conditioning systems.

Features: Valve provides unobstructed flow. Seat is not affected by soldering temperatures. Distortion is avoided through amply-sectioned body.

Description: No. 90 bronze solder end gate valve is for use with K, L, and M copper tubing. Working pressures are: steam—125 lb; cold water, oil, gas (non-shocking) — 200 lb.

(Product of American Chain & Cable Co., Inc., Dept. CP, Reading, Pa. . . . or for more information check CP 3307 on handy form, pages 2 and 3.)

See PROCESSING AND ENGINEERING DATA
sheets for insertion in loose-leaf binders
pages 184, 186, 188, & 190.

Tough GASKETS

FOR TOUGH JOBS ARE MADE WITH TYGON

One sure answer to tough gasketing problems is the versatile corrosion-resistant TYGON family of plastic compounds. For, TYGON not only resists acids, alkalis, oils, greases, some solvents, and water — but, is strong, resilient, abrasion-resistant and light in weight. TYGON is also impermeable, non-contaminating and non-oxidizing. TYGON can be used for virtually any gasketing job in chemical processing and general industrial equipment — wherever positive, enduring seals or separators are required. For food and beverage uses, special non-toxic compounds are also available.

For service as gasketing, TYGON is made in a number of standard compounds, translucent or glossy black, which offer a range of physical, electrical, and chemical properties for almost any application.

TYGON gaskets can be die-cut from calendared or press-polished sheets (1/8" to 1/2" thick); can be molded in practically any size or shape; or, can be extruded as tubing, solid cord, or channel in continuous lengths.

Write today, for further information and technical assistance on the use of TYGON as gasketing. Ask also about the other uses of this versatile plastic that can help you combat corrosion.

TYGON
THE VERSATILE
CORROSION-RESISTANT
PLASTIC



TYGON GASKET — in service against 85% acetic acid, at 160°-175°F lasts over a year compared to a few weeks' service from rubber. Photo courtesy Hoffman-LaRoche Inc.

TYGON TUBING



fully flexible, glass-clear, mirror-smooth for safe, speedy transmission of liquids, gases and semi-solids.

TYGON TANK LINING



long lasting, heavy duty sheet TYGON to withstand virtually all chemicals.

TYGON PAINT



quickly applied, fast drying protection against corrosive fumes and spillage.

U. S. STONEWARE
AKRON 9, OHIO

PLASTICS AND SYNTHETICS DIVISION

When inquiring check CP 3308 on handy form, pgs. 2-3

344-C

NEWARK Metallic FILTER CLOTHS

**Weaves
that
STOP
the Solids!**

Enlargements 4X

Here are five different weaves of Newark Metallic Filter Cloths. All different in the arrangement of the strands; hence different also in their functioning.

Study the shape of the solids in your solution being filtered. That's just as important as the size, if you want clarity of filtrate. Then write us fully about the solids and we'll be glad to recommend the weave of the cloth that will "stop" them.

Many malleable metals are still available so, if necessary, we can probably supply you with a material that will also withstand highly corrosive conditions. When writing, also give solution characteristics.

All Newark Filter Cloths are woven in our own plant, on our own looms, by our own skilled weavers.

Our entire line of Filter Cloths, Wire Mesh and Space Cloth, Sieves, "End-Shak" Testing Units and other Newark Products are described fully in our new Catalog D. Send for a copy.

**Newark Wire Cloth
COMPANY**

351 VERONA AVENUE • NEWARK 4, NEW JERSEY

Philadelphia 3, Penna. San Francisco, Calif. Chicago, Ill. New Orleans, La. Los Angeles, Calif. Houston, Texas
1919 Widener Bldg. 3100 19th St. 29 N. Wacker Dr. 520 Maritime Bldg. 1400 So. Alameda St. P. O. Box 1970

When inquiring check CP 3309 on handy form, pgs. 2 & 3.

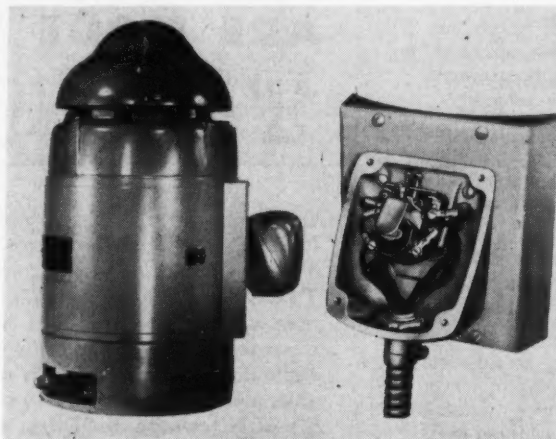
CONSTRUCTION & MAINTENANCE

Replace centrifugal switch with relay to disconnect starting capacitor . . .

relay is similar to those used successfully for years in hermetically-sealed refrigerator units

Uses: To satisfy power requirements for single-phase, vertical, hollow-shaft motors in range from 1½ to 5 hp with speeds of 1800 or 3600 rpm.

Features: Types SCU-C and SCU-R vertical motors incorporate accelerating type relay instead of centrifugal switch to disconnect starting capacitor. Relay is similar



Relay is located in split-type box on side of motor

to those used successfully for years in hermetically-sealed refrigerator units. It is said to provide fast, clean contact break; and large double-break contacts insure long life.

Description: Relay is located in split-type outlet box attached to side of motor. Purpose of this was to avoid damage from bearing grease working into relay or foreign particles being blown into contact points by ventilating system.

Single-phase vertical motor is said to provide maximum performance with positive relay operation over widest variation in line voltage. Motors are available with asbestos protection of windings, down-draft ventilation, adjustable hollow shaft, reverse protection clutch, weather-proof housing, and conservatively rated capacitors.

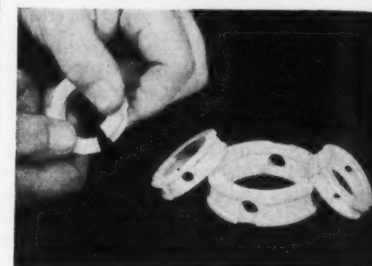
(Product of U. S. Electrical Motors Inc., Dept. CP, 200 E. Slauson Ave., Los Angeles 54, Calif. . . . or for information check CP 3310 on handy form, pages 2 and 3.)

Sectional views of combustion chamber and burner nozzles

Eight-page catalog section illustrates graphite combustion chambers and burner nozzles. Chambers are vertical graphite towers, which are cooled externally. Units are designed for burning wet hydrogen and chlorine gases with flame which theoretically reaches temperature of 5000°F. Catalog states that chambers are well adapted to burning dry gases containing water forming constituents such as air and oxygen. Chlorine, natural gas or methane, and steam can also be burned together in these chambers.

Impervious graphite burner nozzles are said to produce high efficiency, mushroom-shaped flame, which assures complete combustion of gases. Outstanding features of chamber are that it burns hot (uncooled) cell gases saturated with water, withstands severe thermal shock, and is

New! TEFLON FLEXIBLE SEAL CAGES



USES

CHEMICAL & POWER PRODUCTS have developed a one piece, flexible Teflon seal which may be snapped over the shaft for easy installation or may be easily removed in the same manner.

ADVANTAGES

Teflon seal cages will not score if they should contact the shaft or sleeve during operation. Pump manufacturers have found that they can be more easily installed than metal seal cages and do not get lost during shipment. Being flexible and in one piece, they can be snapped over the shaft prior to shipment. Their construction provides a seal cage that will not bend or collapse under extreme gland pressure.

HOW TO ORDER

Specify Pump manufacturer's name, model and size. If intended for a reactor, agitator or other type of process equipment, give shaft diameter and bore of stuffing box.



11 Broadway, New York 4, N. Y.

When inquiring check CP 3311 on handy form, pgs. 2-3

CHEMICAL PROCESSING

corrosion-resistant. According to catalog, simplicity of design permits liquid flow by gravity and gases are moved by steam jet ejector. Chamber sizes are 12, 16, 19, and 24", with burner nozzle sizes of 2, 4, and 6".

Complete description of the equipment, its installation and operation is provided in two-color catalog. Table of capacities is presented as well as a list of related items such as pumps, valves, heat exchangers, and fittings. Cat Section S-7530 is issued by National Carbon Company, Division of Carbide and Carbon Corporation, Dept. CP, 30 E. 42nd St., New York 17, N. Y. When inquiring specify CP 3312 on handy form, pages 2 and 3.

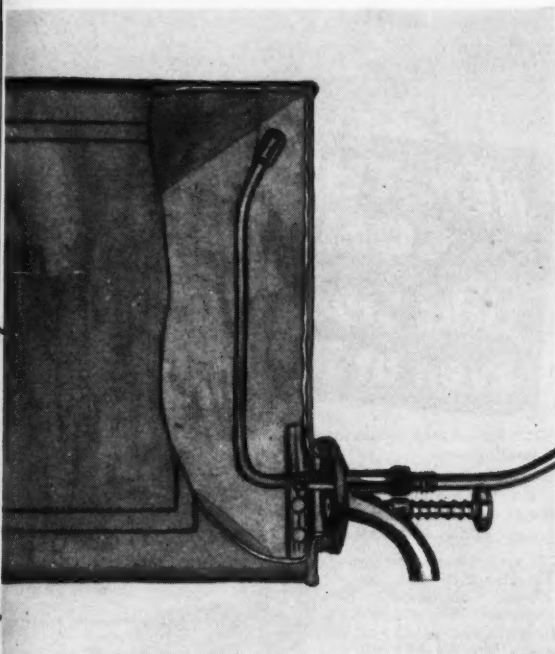
Oil, solvents, glycerine flow freely (without spill or splash) from spigot . . .

leakproof outlet can be used on size openings up to 2" on 5-gal cans

Uses: For dispensing oil, solvents, glycerine, or any non-corrosive fluids from 5-gal cans.

Features: Easily installed spigot; will dispense the contents without spilling or splashing; and employs a universal fitting that can be used on any size opening up to 2" — regardless of the type closure.

Description: Klix Speedy Spigots are made of cadmium-plated copper to resist corrosion. The fitting, a weighted toggle-type retaining bar, spans the bottom of



No spill, no splash with corrosion-resistant spigot

the can opening providing a positive, leakproof connection. Design of the spigot also utilizes a proper-seating lapped plunger which is opened by pressure on the thumb bottom.

When the pressure is released, a strong spring immediately halts the flow. An automatic ball valve in the air tube allows a fast, even discharge of liquid while simultaneously preventing the escape of liquids or vapors through the vent.

(Development of the Scientific Glass Apparatus Co., Inc., Dept. CP, Bloomfield, N. J. . . . or for more information check CP 3313 on handy form, pages 2 and 3.

TRADE PAPER EDITION

Published by

SCHUTTE and KOERTING

Company



News

ENGINEERING

JET APPARATUS • HEAT TRANSFER EQUIPMENT • STRAINERS • CONDENSERS AND VACUUM PUMPS • OIL BURNING EQUIPMENT • AUTOMETERS • FLOW MOUNTING • ROCKETEER TUBES • VALVES • THERMAL ANALYSIS • THERMAL ANALYSIS • THERMAL ANALYSIS

Hachmeister-Inc. Reveals Benefits Obtained By SK Steam Jacketed Pump's Performance

("On-The-Job" Illustration and Story by Courtesy of Hachmeister-Inc. of Pittsburgh, Pa., makers of Hako Products)

"SK Steam Jacketed Pumps have proved very advantageous for us," states Mr. H. J. Snyder, Plant Engineer, Hachmeister-Inc., and tells why as follows:

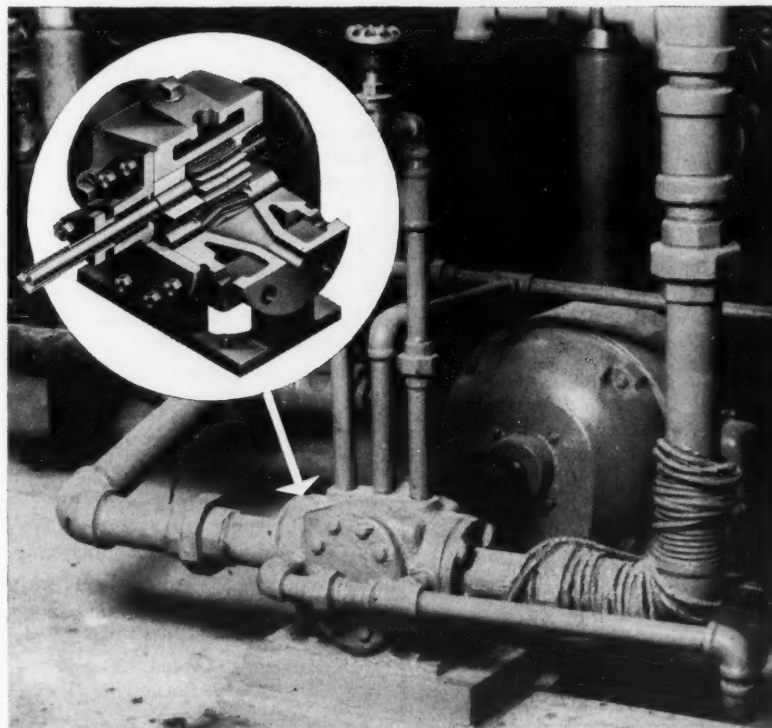
"We have benefitted in our operations because: First, the steam jacket eliminates the need for outside heating necessitated by the viscosity of our material; second, they pump a wide range of thick and thin liquids equally as well; third, they have greatly increased our capacities; and fourth, absolutely no maintenance has been required since installation."

Three years ago, Hachmeister-Inc. installed the SK Steam Jacketed Gear Pump illustrated for use in connection

with the manufacture of Hako-Short.

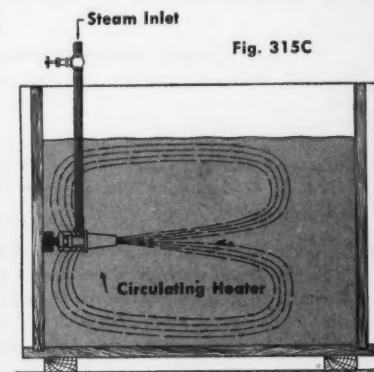
Since then, the pump has been used to distribute various fats and oils from storage to mixing and blending kettles. It is gravity fed from three 300 gal. stainless steel kettles and pumps the material a vertical distance of 10 ft. and a horizontal distance of 42 ft. to supply three other 300 gal. mixing kettles. Using 2" ID inlet and discharge pipes, the pump handles approximately 15 gpm of material.

If you are handling or are planning to handle liquids with viscosities which necessitate the use of high temperatures, investigate this pump. Details are available on request.



SIMPLE JET HEATER HEATS AND CIRCULATES LIQUIDS IN TANKS

SK Fig. 315 Circulating Heaters operate on jet principle to heat and circulate liquids in open tanks. Steam enters heater through inlet at top of heater and issues through a double steam nozzle in the form of two jets — one an annular suction jet and the other a straight forcing jet. The entrainment action of the suction jet draws tank



liquid into mixing nozzle and discharge tube where it is heated by the steam. The forcing action of the central steam jet discharges liquid from heater and causes continuous circulation within tank.

These heaters offer several outstanding advantages which are explained in detail in Bulletin 3-A. Ask for a copy.

**SCHUTTE and
KOERTING Company**
Manufacturing Engineers
22 CORNWELLS HEIGHTS
BUCKS COUNTY, PA.
Representatives in Principal Cities

When inquiring check CP 3314 on handy form, pgs. 2 & 3.

Cut out OVERLOADING UNDERLOADING



with **SYNTRON** "vibra-flow" VIBRATORY FEEDERS

Syntron Vibratory Feeders provide an efficient, economical method of conveying bulk chemicals and the simplest and easiest means of controlling the rate of flow.

All along your chemical production line materials can be made to flow as desired — your processing plant need never be starved or overfed — with Syntron Vibratory Feeders your feed rate can be varied to provide a flow of materials to suit your needs.

Overloading or underfeeding is thus avoided without constant supervision — no more overflows that waste costly chemicals — no more tie-ups or material shortages that slow production — your processing can be continuous with maximum output and efficiency, plus — minimum maintenance costs. Due to the absence of mechanical wearing parts, Syntron Feeders operate with an exceptionally low maintenance cost.

MATERIALS HANDLED INCLUDE

Sal Ammoniac
Tartaric Acid
Insecticides
Photographic Chemicals
Dental Powder
Phosphates
Face Powder
Fertilizers
Nitrates
Resins
Arsenic, etc.

They are available in a number of models and trough styles, with capacities up to 500 tons per hour, that are readily adaptable to many processing systems.

Our Engineering Dept. will gladly recommend the correct model Syntron Feeder for the solution of your feeding problems. Please include all pertinent data, such as material to be fed, percentage of moisture, approximate tonnage requirements per hour, etc.

Cut out overloading, underfeeding — write today for the full facts on Syntron Vibratory Feeders and see how they can help you.

Write For Your **FREE** Copy Of Our 25 Page Booklet

SYNTRON COMPANY

110 Lexington Avenue

Homer City,

Penna.

When inquiring check CP 3315 on handy form, pgs. 2 & 3

CONSTRUCTION

**Air and liquid inlets
located at top of
nozzle body . . .**

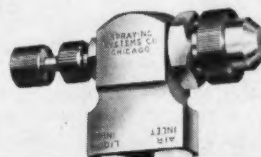
design solves many special mounting problems

Uses: Spraying operations.

Features: Both air and liquid inlets positioned at top of nozzle body, at right angles to direction of spray.

Description: Identified as the 1/8 JACN, this new atomizing nozzle design solves many special mounting problems. Unit illustrated is supplied with shut-off needle.

Capacities of nozzles and the types of spray are determined by the fluid and air nozzle assemblies. A wide range



of these assemblies or set-ups are available to provide pressure or siphon set-ups with round, wide angle round, and flat sprays.

(Available from Spraying Systems Co., Dept. CP, 3216 Randolph St., Bellwood, Ill. . . . or for more information check CP 3316 on handy form, pages 2 and 3.)

**Rubber mat contains
built-in radiant
heating unit . . .**

operates at about 35° above surrounding temperature

Uses: In unheated or refrigerated areas to provide greater comfort for employees who encounter cold working conditions on the job.

Features: Rubber used in mat is especially constructed for toughness.

Description: Center of the Uskon rubber mat contains a layer of electrically conductive rubber which constitutes the heating element. Normal operating temperature for the heater is about 35° above surrounding temp.

Mat operates on standard 110-volt current. Electrical cord has a 3-way switch to control temperature.

(Developed by United States Rubber Co., Dept. CP, Rockefeller Center, New York 20, N. Y. . . . or for more information check CP 3317 on handy form, pages 2 and 3.)



NO longer in the laboratory category of scientific curiosity, Lithium has achieved the status of a new industry through the medium of applied research. Lithium's commercial significance embraces field after field. The amazing increase in usage of Lithium and Lithium chemicals has been possible largely through the extensive development work of Metalloy Corporation, basic to this fast-growing industry.

LOOK TO METALLOY—Supplier of 7 Forms of Lithium Metal—17 Lithium Compounds

Supplied experimentally or commercially . . . Metal—Ingot-Cup-Shot-Rod-Wire-Ribbon-Cartridge



COMPOUNDS

Aluminate - Amide - Borate - Bromide - Carbonate - Chloride - Cobaltite - Fluoride - Hydride - Hydroxide - Manganite - Nitrate - Nitride - Silicate - Titanate - Zirconate - Zirconium Silicate

If It's LITHIUM—It's METALLOY!
Write Dept. CP for Data Sheets



METALLOY CORP., Division
Rand Tower
Minneapolis 2, Minnesota

When inquiring check CP 3318 on handy form, pgs. 2 & 3

**NEW
THREAD
COMPOUND**
**Licks Stud Freezing
Even at 1800° F.!**

SAFE for all high temperature applications!

SAFE for Stainless and Alloy Steels, too, will not pit or corrode!

IDEAL as a cutting compound to prevent galling of Stainless Steel!

Make a convincing test of Fel-Pro C-5 "Hi-Temp" Thread Compound at our expense. Then you can be sure that C-5 will do everything we say it will do. See how it cuts heater dismantling time—how it cuts costly stud breakage and eliminates pitting. Then you will standardize on C-5 just as have some of the nation's largest refineries, utilities and process industries. Write for **FREE** Sample and data sheet **TODAY!**



**FREE
TEST SAMPLE!**
Send for **YOURS
TODAY**

**FEL-PRO
C-5
"HI-TEMP"
THREAD
COMPOUND**

FELT PRODUCTS MFG. CO.
1515 CARROLL AVENUE • CHICAGO 7, ILLINOIS

When inquiring check CP 3319 on handy form, pgs. 2 & 3

CHEMICAL PROCESSING

High performance with rugged duty are prime qualities of actuator switch . . .

in die-cast aluminum enclosures, designs are cam-operated with rise up to 30°

Uses: For controlling operation of other moving parts, safety switches, etc.

Features: Gives high-precision performance in rugged, cam-actuated service. Die-cast aluminum enclosure houses roller-plunger-actuator adapted to operation by cams with a rise of up to 30°. Protective covering minimizes damage from vibration and shock; sealed against dirt, dust, etc.

Description: Snap-action switch has the capacity to make or break steady-state currents of 20 amps, and to handle in-rush currents as high as 75 amps. In both Cat listings BAF1-2RQ9-LH and BAF1-2RQ9-RH the plunger assembly can be turned to any position necessary to align its roller with the direction of cam approach. A nut is then tightened down, clamping the plunger assembly securely in position.

Both listings mentioned above are single-pole, double-throw switches. UL lists these switches as: 3/4 hp, 115v AC; 1 1/2 hp, 230v AC; 20 amps 125, 250, or 460v AC; 10 amps 125v AC "L"; 1/2 amp 125v DC; 1/4 amp 250v DC. ("L" rating denotes suitability for controlling tungsten filament lamp load on AC.)

Other characteristics include: operating force, 2 1/2 lb maximum; release force, 3/4 lb minimum; weight, 0.55 lb, approximate; pre-travel, 3/32 in maximum; differential travel 0.010 in maximum; and overtravel 0.187 minimum. (Development of Micro-Switch Div. of Minneapolis-Honeywell Regulator Co., Dept. CP, Freeport, Ill. . . or for more information check CP 3320 on handy form, pages 2 and 3.)

High capacity in small space fits dust collector to most state codes . . .

is 18 by 25 by 23" high, but develops 525 cfm at static suction of 2" water column

Uses: Designed for remotely located individual dust sources. This unit collects dust, lint, dirt, chips, and shavings from the air around that location.

Features: While the unit occupies only 18 by 23" floor space and 25" overall height, it develops a rated 525 cfm at a static suction of 2" water column. Under most state codes it will be permissible to recirculate the cleaned air, bringing about savings in heat.

Description: The Model 520 Dustkop has a paddle-wheel, self-clearing fan which is direct-driven by a 1/3 hp continuous-duty motor — the latter for operation on either 110 v single-phase or 220/440 v three-phase 60-cycle power. It is available with single 5", single 4", or double 3" inlet connections.

Built-in cyclone separator of pre-determined size and performance characteristics removes all dusts down to 20-micron size. The fines are removed by the easily replaceable spun-glass filter which comprises the top of the unit. Replacement of the filter is required at prolonged intervals, and even then the cost of replacement is very small. A hand shaker crank permits periodic shake-down of the filter.

(Maker is Agat-Detroit Company, Dept. CP, Ann Arbor, Mich. . . or for more information check CP 3321 on handy form, pages 2 and 3.)

TYPICAL WIGTON-ABBOTT SERVICE IN THE PROCESS ENGINEERING FIELD

**DEVELOPMENT OF A NEW PROCESS**

Assign your process problem to Wigton-Abbott. Whether it is the manufacture of a new product or the improvement of your present process, Wigton-Abbott engineers will solve it with the experience gained in many fields of process manufacturing. From a study of the requirements — through design and operation of a pilot plant — to development of the data necessary to construct a full-scale plant, Wigton-Abbott is equipped to take the entire problem off your hands. This is one phase of the 5-point service to the chemical industry offered by the Wigton-Abbott Corporation — a service available separately or as part of an overall project.

**• Yours for the asking**

"Packaged Plant Construction"
Reading time, only 10 minutes—
but it will save you many hours
by answering basic questions.

**Wigton-Abbott Corporation**

DESIGNERS...ENGINEERS...CONTRACTORS...PLAINFIELD, NEW JERSEY

When inquiring check CP 3322 on handy form, pgs. 2 & 3

SPROUT-WALDRON



**Save
SPACE**

**Save
POWER**

For any reasonably free-flowing material the advantages of a vertical type mixer can be overwhelming!

In space and power savings, they are unique. Imagine a 1,200 cu. ft. mixer requiring a space only 10 ft. square, and using only 30 horsepower to mix 32 tons of material!!

As the world's most experienced designers and fabricators of this type mixer we've built them in sizes ranging from 10 to 1,200 cu. ft., of carbon steel, of stainless steel, of plexiglas—with self-loading and self-unloading features—with provisions for cooling and drying while mixing! They're self cleaning—they require the minimum of labor.

Ask a Sprout-Waldron representative to study your mixing problem, or write for full details to Sprout, Waldron & Company, Inc., 10 Logan Street, Muncy, Pennsylvania.



SPROUT-WALDRON

The Best in PROCESSING EQUIPMENT Since 1866

When inquiring check CP 3323 on handy form, pgs. 2 & 3

CONSTRUCTION

**Non-flammable solution
removes soils and
dirt effectively . . .**

may be greatly diluted for maintenance cleaning

Uses: For removal of grease, oils, stains and old deposits of soils on machinery, light fixtures, storage bins and other plant equipment.

Features: Non-flammable, non-toxic, non-corrosive to machinery, and safe to use on good paint.

Description: Kelite No. 28 cleans by penetration and displacement of soils — no solvent is needed. It is designed for spray use but is adaptable to the conventional wipe method as well. After the initial cleaning to remove heavy soil deposits, it may be greatly diluted for periodic maintenance cleaning.

Completely non-flammable, it is reported that Kelite No. 28 has even been used to put out small fires in an emergency. It leaves a film-free surface ready for immediate repairing if desired.

For economy and ease of use, the cleaner is available along with a 1 qt all-brass sprayer. Unit may be connected to plant air lines and is usable at pressures to 300 psi. Quantities available include: 5 gal can, 15 gal drum, and 55 gal drum.

(A product of Kelite Products, Inc., Dept. CP, 3401 W. Touhy Ave., Chicago 45, Ill. . . or for more information check CP 3324 on handy form, pages 2 and 3.)

**Liquid chemical causes
masonry to shed
water . . .**

helps prevent adhesion of dirt to building walls

Uses: As water repellent for treatment of brick, concrete, and stucco.

Features: Application keeps building interiors dry. It also resists formation of powdery crusts and accumulation of soot and grime on walls.

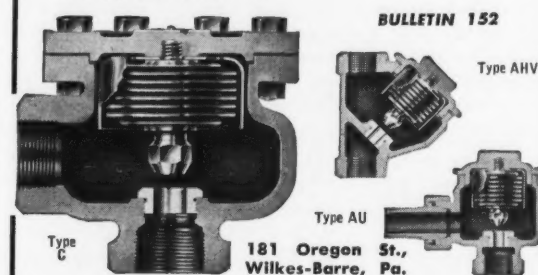
Description: Chemical can be applied by brush or spray to masonry surface at any working temperature. It is acid and alkali resistant and is unaffected by salt spray. Quick drying and absence of surface discoloration are advantages. Treated walls can be painted.

(Product of Stonhard Company, Dept. CP, 1306 Spring Garden St., Philadelphia 23, Pa. . . or for more information check CP 3325 on handy form on pages 2 and 3.)

NICHOLSON TRAPS

**SAVE 4580 LBS. OF
STEAM PER CYCLE**

A west coast lumber firm reports that substitution of Nicholson traps for a mechanical type effected a cyclic saving per kiln of 550 gallons of condensate, or 4580 lbs. of steam. See why leading plants are increasingly adopting Nicholsons for advanced features: operate on lowest temperature differential; 2 to 6 times average drainage capacity. 5 types; sizes 1/4" to 2"; press. to 250 lbs.



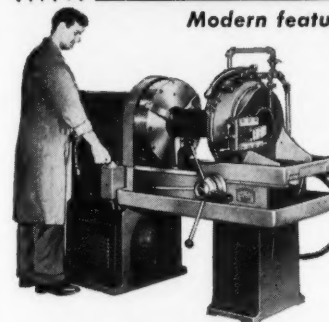
W. H. NICHOLSON & CO.

TRAPS · VALVES · FLOATS

When inquiring check CP 3326 on handy form, pgs. 2 & 3

**New Pipe Threading Machine
Cuts Cost of Maintenance Work!**

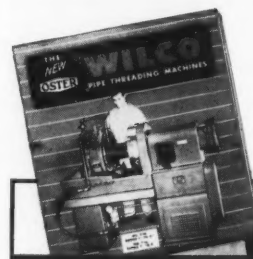
**Modern features assure threading
speed and accuracy**



No. 714 "WILCO" Threading Machine has standard range 1" to 4" pipe. Extra range 1/2" to 3/4" pipe. Bolt range 3/4" to 3".

No. 716 "WILCO" Threading Machine has standard range 1" to 6" pipe. Bolt range 1" to 4".

A single die-head covers entire range of each machine. One set of holders and dies threads all sizes, right hand American National Standard of same pitch, without change. A movement of cam lever sets dies to any size within range of the machine. Cut-off and reaming and chamfering device is standard equipment.



Send for illustrated Oster "WILCO" catalog which explains all features of these modern threading machines. Table shows threading time on various sizes of pipe.

THE OSTER MFG. CO.
2032 East 61st Street
Cleveland 3, Ohio

When inquiring check CP 3327 on handy form, pgs. 2 & 3

CHEMICAL PROCESSING

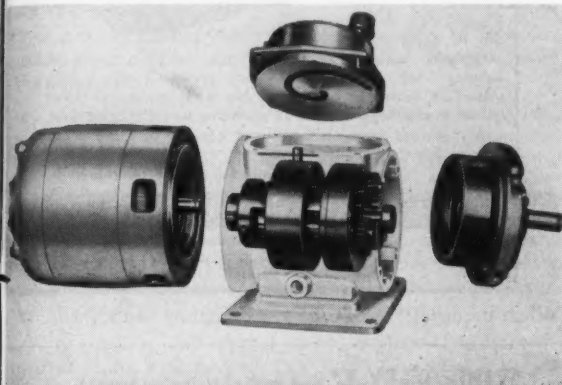
**Provides wide speed range
from desired maximum
to zero . . .**

low input speed and absence of spring loading yields foolproof overload protection

Uses: Variable speed transmission is designed for operation at 1800 rpm input without use of auxiliary spring loading.

Features: Because of low input speed and absence of spring loading, unit provides foolproof overload protection. In the event of a jam in driven machine, transmission can be stalled for prolonged periods of time without damage to machine or transmission.

Description: Model 18 is available with and without motor and with standard output as well as with built-in worm reduction, single-stage and double-stage helical spur reduction. Unit may incorporate single turn, lever, remote



Phantom view shows principle of operation of variable speed transmission

mechanical or remote electrical controls. Complete package is variable speed drive, motor, reduction, and control is mounted on driven machine with only four bolts. This affords substantial savings in space and mounting costs.

Graham drive uses familiar compound planetary gear system except that the non-rotating member is traction ring and engages two or more tapered rollers at varying diameters. This traction ring is moved lengthwise of the transmission to change speeds. Rollers are supported in carrier and are inclined at angle equal to their taper so that their outer edge is maintained parallel to central axis. Required traction pressure between rollers and ring is obtained through centrifugal force of rollers. They press outwardly against the ring under centrifugal force.

(Product of Graham Transmissions Inc., Dept. CP, 3754 N. Holton St., Milwaukee 12, Wis. . . . or for more information check CP 3328 on handy form, pages 2 and 3.)

Describes practical methods of floor maintenance

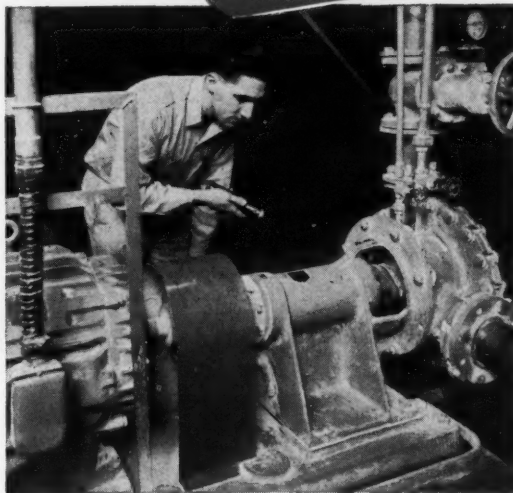
Economical and efficient care of a wide variety of floor materials is described in twelve-page brochure. This practical guide describes the conditioning, repairing, and maintenance methods for floors in office buildings and factories. Floor materials covered include concrete, asphalt tile, cork, linoleum, magnesite, terrazzo, and wood.

"Floors Without Flaws" is issued by A. C. Horn Company, Inc., Dept. CP, Tenth Street & 44th Ave., Long Island 1, New York. When inquiring specify CP 3329 on handy form, pages 2 and 3.

No Leakage Here!

Equiseal
stuffing box stops
all leakage on suction
heads up to 15 feet

ALLIS-CHALMERS
**PROCESS
PUMPS**



IF YOU MUST STOP LEAKAGE because of sanitation or corrosion . . . or if abrasives in the stuffing box make it hard to keep a packing in your process pump . . . you need an Allis-Chalmers Type PD Process Pump with *Equiseal* stuffing box. Within its range, the *Equiseal* stuffing box keeps the pumped liquid entirely out of the packing. The liquid cannot leak out while the pump is running, even if the packing is removed. Abrasives cannot enter the stuffing box to ruin the packing.

HOW IT WORKS

The *Equiseal* stuffing box arrangement consists of an auxiliary impeller which produces a low pressure area in front of the stuffing box. At 1750 rpm, pressure on the pump side of the stuffing box is zero for suction heads up to fifteen feet and is reduced fifteen feet where the suction head is higher.

If you have leakage or excessive packing wear problems, you should know more about the Allis-Chalmers Type PD Process Pump equipped with the *Equiseal* stuffing box. To get complete information, call your Allis-Chalmers District Office or write Allis-Chalmers, Milwaukee 1, Wis., for Bulletin 08B6615.

Equiseal is an Allis-Chalmers trademark.

A-3707

ALLIS-CHALMERS

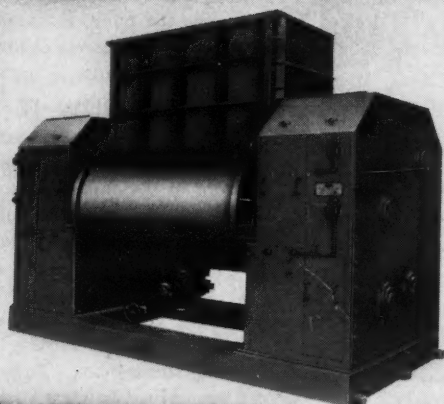
When inquiring check CP 3330 on handy form, pgs. 2 & 3.



rapid dispersion in high density PAPER COATINGS

Paper manufacturers are achieving better and more rapid dispersion of ingredients in high density coatings with Readco Mixers.

Their unique bowl construction greatly multiplies the effective mixing area . . . reducing the length of the mixing cycle and resulting in consistently high rates of production. For complete information, write to the Bakery • Chemical Division, YORK, PENNSYLVANIA.



READCO
CHEMICAL
EQUIPMENT

READ STANDARD
CORPORATION

When inquiring check CP 3331 on handy form, pgs. 2 & 3

CONSTRUCTION

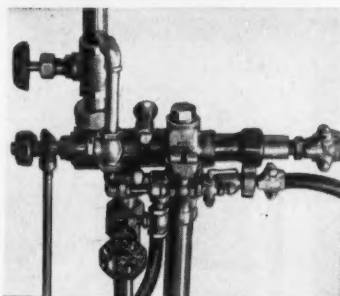
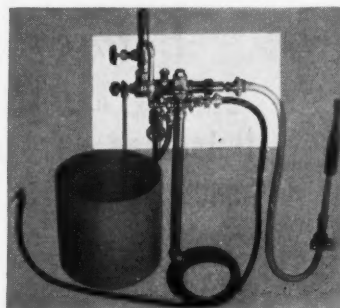
**Cleans with jet streams
of hot chemical
and water . . .**

compact unit handles two-step
cleaning procedure

Uses: Handles all requirements of
two-step cleaning procedure to remove
deposits, paint, and stubborn matter.

Features: Cleans chemically and
hydraulically. Throws solid stream of
hot chemical and provides a separate
high impact jet of water.

Description: One hose provides
150-gph jet of hot undiluted deter-
gent or solvent, which deposits film
of liquid on surfaces over 20 feet



Close-up of "Chemo Jet"; and at-
tached (top) to tank

away. This eliminates scaffolding and
perforated flow rigs previously re-
quired for applying chemical.

Through another hose and nozzle, the
same unit shoots high impact jet of
water. This stream is effective at
distances up to 35 feet. Jet combines
high temperature, high pressure, and
volume to 1000 gph in removing
chemical-soaked material.

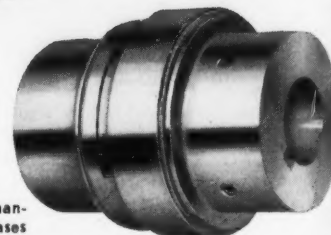
Heating and propelling is done within
unit by ordinary plant steam, without
heaters, pumps or any moving parts.
Installation requires only connection
to a plant steam and cold water line.
Cleaners are available for wall mount-
ing or portable with 50 gal tank.

(Product of Sellers Injector Corp.,
Dept. CP, 1617 Hamilton St., Phil-
adelphia 30, Pa. . . or for more
information check CP 3332 on handy
form, pages 2 and 3.)

new design...

**Adds 50% to safe maximum
speeds of**

LOVEJOY
FLEXIBLE COUPLINGS



With the collar
held in place by
a special multi-
ple leaf spring,
this new Lovejoy
Flexible Coupling
handles speed in-
creases
up to 50% — with
complete safety! Instantly
adjusts for misalignment,
vibration, surge or backlash. No wear on metal jaws
— no tear-downs to change cushions — no lubrication
ever needed! Lovejoy Couplings are for services from
1/6 to 2,500 H.P.

Write for catalog with handy selector charts

LOVEJOY FLEXIBLE COUPLING CO.

5072 W. Lake St., Chicago 44, Illinois

Also Mfrs. of Lovejoy Universal Joints and Lovejoy Variable
Speed Transmissions

When inquiring check CP 3333 on handy form, pgs. 2 & 3

FLUOROFLEX-T* rod and sheet give you

TEFLON®
at its best

FLUOROFLEX-T is "Teflon" pro-
cessed under rigid control in new
equipment expressly designed to
bring out utmost inertness and sta-
bility in this material. *Uniform* in
density and dimension, Fluoroflex-
T sheets are exceptionally flat—
easier to work with. Rods are free
from internal strains, cracks, or porosity—easier to machine.
Teflon withstands -90°F to +500°F. It is "self-lubricating."
It's completely unaffected by virtually all chemicals. Which
makes Fluoroflex-T the ideal packing, gasket or seal for
processing equipment. Rods from 1/4" to 2" diameter; sheets
21" x 21" in 1/16" to 1 1/2" thickness. Ask us to quote on
your needs. RESISTOFLEX CORPORATION, Belleville 9, N. J.

*Reg. trade name of Resistoflex Corp. for products manufactured from
Teflon resin.

®DuPont trademark for its Tetrafluoroethylene resin.



RESISTOFLEX

*For out of the ordinary
engineering with synthetics*

When inquiring check CP 3334 on handy form, pgs. 2 & 3

CHEMICAL PROCESSING

able to handle liquids where a constant capacity is required but head varies . . .

self-priming device available with two types of general purpose, turbine-vane pump

Uses: For pumping hot and cold, clear and vaporous liquid, in moderate capacities, against medium or high heads. Indicator uses would be for boiler feed and condensate return service and for a broad range of liquid boosting, circulating, transfer and filtering. Only limitation imposed within range of performance characteristics is that liquid handled must be clear and without solids.

Features: Ability to handle liquids where a constant capacity is desired under variable head conditions and where vapor may be present in the liquid.

Description: Line of self-priming and standard design turbine-vane type pumps is divided into Types TVE and TVB. Former is a group of pumps close-coupled to face mount electric motors, while the latter consists of flexible-coupled electric drive pumps. Both types are available with or without self-priming device.

Only moving part in this pump is the free running impeller. Because side and top suction are employed in the base design, disassembly of the liquid end for inspection and repair is simple and easy and may be accomplished without breaking suction or discharge piping.

Standard construction materials for handling clear water are: cast iron case, bronze impeller and liners, stainless steel shaft and a standard mechanical shaft seal. Cover liner, impeller and inner liner are all replaceable.

Capacity range at 3500 rpm is up to 58 gpm; at 1750 rpm, up to 56 gpm. Headrange: 800' at 3500 rpm and up to 300' at 1750 rpm. Motor sizes up to 20 hp are available at 3500 rpm and up to 7½ hp at 1750 rpm.

(Introduced by Peerless Pump Division, Food Machinery and Chemical Corp., Dept. CP, 301 West Avenue 26, Los Angeles 31, Calif. . . or for more information check CP 3335 on handy form, pages 2 and 3.)

Only contact pressure and room temp for joining hard-to-bond metals . . .

thermosetting resin also recommended for wood, plastics, glass, hard rubber, etc

Uses: Particularly suited for many hard-to-bond metals, including the joining of aluminum to aluminum. Has also proved successful in bonding a host of other rigid materials to themselves and each other, wood, plastics, etc.

Features: Requires merely contact pressure for joining and cures at room temperature.

Description: Adhesive A-6 is a thermosetting resin. Curing may be accomplished in 1-36 hours, depending upon temperature applied. Bonded materials can be assembled immediately after applying the adhesive. Shear tests often exceed 3000 pounds per square inch at room temperature, and 2500 pounds per square inch at elevated temperatures. A-6 contains no volatile solvent and does not shrink, swell, or creep.

It is a polymerizing, 2-component system that consists of a viscous paste and curing agent. Maker reports that close control over bonding is possible.

(Product of the Armstrong Products Company, Dept. CP, Warsaw, Ind. . . or for more information check CP 3336 on handy form, pages 2 and 3.)

Y VALVES

ANGLE VALVES

SAFETY VALVES

PLUG COCKS

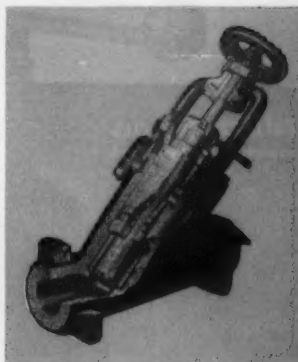
PIPE and FITTINGS

OF SOLID CHEMICAL PORCELAIN

ARMORED WITH FIBERGLASS-

REINFORCED PLASTIC

Lapp TUFCLAD



Lapp

PROCESS EQUIPMENT

CHEMICAL PORCELAIN VALVES • PIPE • RASCHIG RINGS
PULSAFEEDER CHEMICAL PROPORTIONING PUMPS

For problems involving severe corrosion or freedom from metallic contamination, the chemical processing industry has found no more effective—or economical—material than Lapp Chemical Porcelain. Now this same solid porcelain material is available with TUFCLAD, a new tough armor which greatly adds to operating security—protection of personnel and equipment—certainty of avoiding product loss.

TUFCLAD is woven Fiberglass fabric, impregnated and bonded in multiple layers to the porcelain body with an Epoxide resin of high strength and chemical and heat resistance. Armor is tightly knit to porcelain and runs end-to-end, under flanges.

In operation, TUFCLAD provides a cushion to protect porcelain against accidental damage in handling or operation—and an insulator against thermal shock. But most important, the TUFCLAD shell is of itself homogeneous and tough—fully able to hold operating pressures against gross leakage even though porcelain is damaged by accident, explosion or fire.

Write for description and specifications of Lapp TUFCLAD-armored Porcelain valves, plug cocks, safety valves, flush valves, pipe, fittings and special shapes. Lapp Insulator Co., Inc., Process Equipment Division, 524 Maple Street, Le Roy, N. Y.

When inquiring check CP 3337 on handy form, pgs. 2 & 3

Why skilled workmen Choose

RIGID

PIPE VISES



8 sizes for pipe from 1/4" to 6"

It's extra easy to work with RIGID Bench Yoke Vises

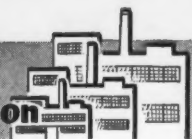
- ★ All have handy integral pipe rests and benders.
- ★ Yokes and bases of strong special malleable; top quality tool-steel jaws—LonGrip jaws up to 6" capacity.
- ★ Made in bench, post, kit, stand and trisland models. Chain vises in bench, post, stand and trisland models.
- ★ Buy work-saver RIGID vises at your Supply House.

THE RIDGE TOOL COMPANY • ELYRIA, OHIO



When inquiring check CP 3338 on handy form, pgs. 2 & 3

Expanding Chemical Production



Krilium for soil now available, research is extended

Within two days after Monsanto Chemical Co. announced the availability of its new soil conditioner, Krilium, to the general public, it also released details on its 257-acre experimental farm near Hazelwood, Mo., to be used for further research on the new conditioner and other agricultural chemicals.

Activities at the new site will be directed toward practical field testing of chemical formulations of herbicides, fungicides, soil conditioners, insecticides, and similar products intended to improve yield and quality of farm and garden products.

Techniques and rates of application for the new product, a synthetic polyelectrolyte, in agriculture and erosion control are still under study. Availability of the new soil conditioner for lawns and home gardens was made nearly a year sooner than was originally predicted. Initial sales will be handled through mail orders. Distributors will be announced by the company as they are appointed.

Plant for hydrocarbon chemicals slated for N. J. location

Construction of a hydrocarbon chemicals plant for Hercules Powder Company is scheduled to begin late this year or early next year on a 275-acre tract slightly northwest of Gibbstown, N. J., on the Delaware River.

Representing an investment of almost \$8 million, the plant itself will cover about 60 acres of the tract, (additional acreage is for future expansion) and will produce phenol, para-cresol, acetone, and cymene alcohols.

Three-fourths destroyed by fire, Harwick has recovered

With a recent Open-House celebration, and at a cost of nearly \$300,000, The Harwick Standard Chemical Company of Akron, Ohio, formally hailed complete recovery from a disastrous fire that destroyed 75 per cent of the plant on the night of May 1, 1951.

Rebuilding the plant, after the holocaust caused the loss of hundreds of tons of chemicals and considerable office damage, was done within an 11-months period despite difficulties in procuring critical building materials. The new building now provides many additional features including a complete products' control laboratory, tank farm with 60,000 gal storage capacity, and more warehouse space.

Sun Oil, Dow Chemical Ltd. exchange adjacent land purchases

A reciprocal sales agreement involving purchase by both companies of adjoining land at Sarnia, Ont., has been transacted between the Sun Oil Company, Ltd., and Dow Chemical of Canada, Ltd.

Sun Oil has sold its 125-acre refinery site there to Dow and at the same time has purchased from Dow a 200-acre site immediately south of the present property.

Get government OK for \$50 million plant to produce from hydrocarbons

Construction plans of the American Cynamid Company to build a \$50 million plant near New Orleans, La., for production of chemicals from natural gas have been approved by the government.

The plant will be located on a 600-acre site in Jefferson Parish, about 10 miles above New Orleans on the West bank of the Mississippi. As initially projected, the plant will produce ammonia, acetylene, hydrocyanic acid and derivatives from these products, among them acrylonitrile and ammonium sulfate.

Await FPC green light for fertilizer material plant construction

Pending approval by the Federal Power Commission of natural gas supply to the proposed site, Allied Chemical & Dye Corp. plans to build a \$25 million plant using natural gas as a raw material to produce urea and other nitrogen fertilizer materials near La Platte, Neb., 15 miles south of Omaha. The plant will be the first of its kind in the Nebraska-Iowa farming area.

If FPC approval is granted promptly, it is expected that construction of the plant will get underway this summer and will be completed within 18 months or 2 years.

Options have been acquired on plant sites near the junction of the Missouri and Platte Rivers with a frontage on both waterways.

Monsanto of Canada buys interest in Ont. rubber, plastics firm

All of the outstanding common stock of Barringham Rubber & Plastics Co., Ltd., Oakville, Ont., has been purchased by Monsanto Canada Ltd., and the company, manufacturers of vinyl chloride plastic, plastic-coated fabrics, and rubber products, will be operated as a subsidiary of Monsanto Canada Ltd.

Through the new arrangement, the Barringham plant, consisting of seven modern buildings on a 20-acre site and representing an investment of more than \$2 million, will be able to afford a supply of Monsanto's vinyl chloride resins and film to the plastics market in Canada.

Fabrics from natural gas and air will make autumn debut

Fabrics and garments made of an acrylic textile fiber derived from natural gas and air and which combines qualities sought by both the consumer and the textile manufacturing industry, will reach retail markets this Fall, it is announced by its producer, the Chemstrand Corp., Decatur, Ala.

Known as Acrilan, the fiber will be blended into various materials from which the clothing apparel is made, varying from 50 to 100 per cent in content. Properties of the new fiber as reported by the manufacturer include: crease retention, wrinkle resistance, washability, shrink-

resistance, quick-drying, durability, wearability, lightweight, good warm-to-the-touch factor, and fabrics that will "breathe" equally well in winter or summer weight materials.

In addition, the fibers process well in existing mill machinery with minimum modifications and have "excellent" dyeability qualities. Efficiency of the garment depends upon the degree to which the fiber has been blended with wool, cotton, rayon, nylon, or other fibers now in commercial use.

The Acrilan plant now nearing completion at Decatur, Ala., will have an initial rated capacity of 15,000 tons of staple annually. A second plant is under construction near Pensacola, Fla., for the manufacture of 25,000 tons of nylon filament yarn per year and is scheduled for completion in 1953 with full output anticipated for early 1954.

Spring fiber Acrilan output of the company's pilot plant at Marcus Hook, Pa., since November, 1950, is being processed into fabrics and garments for the Fall trade. Output will be supplemented at accelerated rates when fiber production starts at Decatur.

Synthetic resin production will get boost with new plant

A contract for construction of a special synthetic resin plant at Green Island (Troy) N. Y., has been awarded to Chemical Plants Div. of Blaw Knox Co., by Marshall-Eclipse Div. of Bendix Aviation Corp. Completion of the plant is expected by the latter part of this year.

To consist of two large production units, the plant will produce primary phenolic resins as well as resins of other types.

Ultra-modern hydrogenation plant goes up in Canada

Canada will begin production of hydrogenation of fatty acids and glycerides in the inedible fields, it has been announced with the completion of a \$100,000 enterprise by W. C. Hardesty Co. at New Toronto, Ont.

Ultra-modern and designed to be completely operated by one man, the new hydrogenation equipment includes improvements developed from operating similar units at the company's Dover, Ohio, plant. Progress of the entire reaction is automatically recorded on a centrally-located control panel reporting on the condition of all process variables.

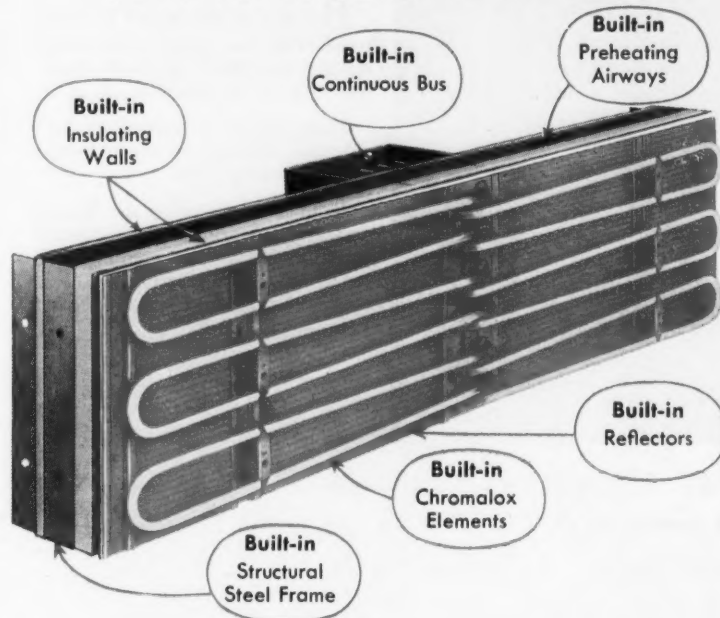
With this new equipment it is expected that 12-hydroxy stearic acid, now used only in experimental batches, may be produced in much greater quantities and more economically. Materials such as partially hydrogenated fats and fatty acids for specialized industrial uses are being considered.

\$2 million anhydrous ammonia plant at Tacoma begins production

Production has begun at the \$2 million anhydrous ammonia plant of Hooker Electrochemical Co., Tacoma, Wash. Present entire production has been contracted for and plans are already under consideration to increase its capacity by 50 per cent. Output of the plant for the time being will be shipped entirely by tank car.

Hydrogen required for the process is obtained from electrolytic cells which convert salt brine into caustic soda, chlorine, and hydrogen. Nitrogen is obtained from the air by means of liquifying equipment.

Announcing a new and better INFRARED Generator



CHROMALOX *Electric* RADIANT PANELS

Now, more efficient far-infrared comes in convenient pre-engineered panels, reducing oven building to a matter of determining heat requirements and assembling panels to fit the job.

CHROMALOX Electric Radiant Panels generate more uniformly absorbed far-infrared heat with quick heat-up and reduced oven lengths.

It's the far-infrared wave length that makes the difference.

- ✓ 9200 Btu's per square foot output per hour.
- ✓ Insulated for voltages to 575 V.
- ✓ Lowest installed cost per kilowatt and per square foot.
- ✓ Built to UL and NBFU requirements.
- ✓ Work temperatures to 700° F. easily obtained.
- ✓ Accurate "dialed" control.
- ✓ Absolutely uniform radiation—no hot or cold spots.

Now... Oven Building as Simple as



It's easy to build ovens of any desired height and length with lightweight Chromalox Electric Radiant Panels. Panels come in 1 x 4 ft. and 2 x 4 ft. sizes, ready to erect and connect with easy-to-follow instructions in each carton. Chromalox on-the-spot engineering assistance to help determine your requirements is yours—no obligation, of course.

CHROMALOX *Electric Heat*

Does More - Better - Consistently

Radiant Heating Division **EDWIN L. WIEGAND CO.,**
7517 THOMAS BLVD., PITTSBURGH 8, PA.

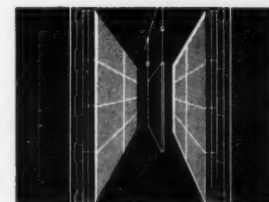
CHROMALOX FAR-INFRARED

*For Baking, Drying,
Curing, Dehydrating*

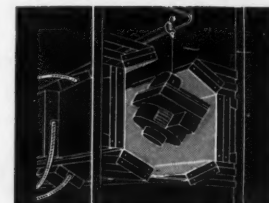
and many other applications.

9 WAYS BETTER

- 1 **Longer wave length**—absorbed equally fast by all colors.
- 2 **Shatter-proof construction**—nothing to break and contaminate.
- 3 **Non-diminishing output** from all-metal Chromalox tubular heat generators.
- 4 **Uniform heat**—no hot or cold spots.
- 5 **High intensity radiation**—with more watts per square foot.
- 6 **Quick heat-up** with energy transformed instantly into heat on the work.
- 7 **Low-cost even assembly.**
- 8 **Infinitely variable output**—from 0 to 100% of capacity.
- 9 **Additionally safe** for any work involving volatiles.



Easily erected banks of Chromalox Radiant Panels are ideal for line production. Far-infrared heat is radiated directly and uniformly without hot spots over entire work area.



Chromalox Radiant Panels can be erected into any oven shape. Rugged construction permits their use in assembly lines, even when hazards of splashed liquids, volatiles and moisture are present.

Get this Bulletin

It contains complete information, specifications and application ideas for the use of Chromalox Radiant Panels. Write for your copy today.



IC-66

When inquiring check CP 3339 on handy form, pgs. 2 & 3

BUFLOVAK-DOPP PROCESSING KETTLES

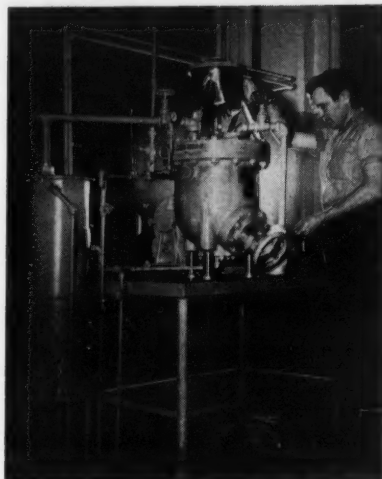
Efficiently Serve Many Industries

YOUR product can be processed in this Dopp Kettle that is installed in the BUFLOVAK Research and Testing Laboratory.

Larger equipment is also available.

Results are positive because they are conducted on a pilot plant scale.

Write for particulars.



BUFLOVAK-DOPP Processing Kettles are used for thorough mixing of a wide range of chemical and food products.

Performance records show considerable savings in steam, power and operating time.

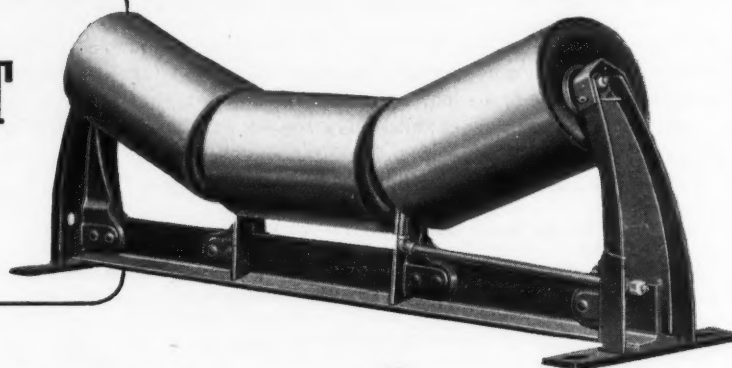
Exclusive features in design and construction assure uniform mixing, heating and cooling. The result is a better, more uniform product, produced at lower cost!

Complete details upon request.

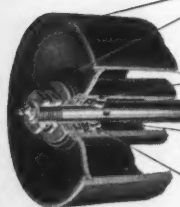
BUFLOVAK EQUIPMENT DIVISION
of BLAW-KNOX COMPANY
1645 Fillmore Ave. Buffalo 11, N. Y.

When inquiring check CP 3340 on handy form, pgs. 2 & 3

LINK-BELT IDLERS



...cut your handling costs 3 ways



CUTAWAY OF "100" ROLL

Concentrically counterbored and journaled full-length central tube and counterbored roll shell are continuously welded to dish heads to maintain balance and bearing alignment.

Precision roller bearings maintain alignment.

Large grease reservoir prolongs lubrication intervals.

Grease-in-dirt-out, cartridge type unit seal preserves lubricant. No springs, no loose parts, no sliding metal-to-metal contact.

YES, you save money three ways when you specify Link-Belt Roller Bearing Idlers—

(1) Reduced maintenance, thanks to better lubricant retention and longer-lasting adjustment.

(2) Less "down-time," thanks to husky, self-aligning roller bearings and efficient sealing.

(3) Lower power requirements, thanks to smooth anti-friction action.

And by standardizing its design, Link-Belt gives you the famous chip-handling 45° Idler at a cost lower than you'd expect. You can choose from the full Link-Belt line of standard and heavy-duty 20° troughing, impact-cushioning, belt training and flat belt idlers in a wide range of roll diameters and belt widths.

LINK-BELT
ROLLER BEARING IDLERS

LINK-BELT COMPANY
Chicago 9, Indianapolis 6,
Philadelphia 40, Atlanta, Hous-
ton 1, Minneapolis 5, San Fran-
cisco 24, Los Angeles 33, Seattle
4, Toronto 8, Springs (South
Africa). Offices, Factory Branch
Stores and Distributors in
Principal Cities. 12,540-A

When inquiring check CP 3341 on handy form, pgs. 2 & 3

Suggests TV control in industry

Four-page bulletin describes wired television model for use in control operations. Three components are camera, power unit, and viewer. Recommended uses pertain to visual, quality, and centralized controls. This would include tasks such as machining explosive materials, pouring steel castings, observing conditions inside furnaces, and coordinating flow of materials on conveyors.

Unit will operate on any 105 to 125 v, 60 c circuit. Unit may be used at an ambient temperature as high as 150°F. Motor actuated lens of camera may be focused from receiving station. Whole installation weighs 133 lb. Three components are pictured in bulletin and wiring diagrams are presented for each unit.

Bul 1025-A is issued by Diamond Power Specialty Corp., Dept. CP, Lancaster, Ohio. When inquiring specify CP 3342 on handy form, pages 2 and 3.

Eight types of controller for pH, flow, temp, etc

To meet demands for instrument control in industrial processing, 32-page bulletin describes eight types of controller unit. Instruments have been designed for specific applications such as controlling temperature, pressure, flow, pH, conductivity, or other processing variables. Basic types are single action, dual, duplex, auto-selector, ratio, relation, pneumatic, and time schedule. Units are available in standard specifications or they may be modified to meet requirements.

Approximately 114 illustrations and diagrams serve to guide understanding and application of automatic control. Each instrument is pictured with typical process diagram and characteristic chart record. One section is devoted to description of five types of control mechanism. Methods of selecting proper control action are discussed according to process requirements. Other pages of bulletin cover controller air connections, case dimensions, measuring elements, and safety shutdown systems. Bul 461 is issued by The Foxboro Company, Dept. CP, 26 Neponset Ave., Foxboro, Mass. When inquiring specify CP 3343 on handy form, pages 2 and 3.

Heat process to recover distillates of carbonaceous material

Sixteen-page bulletin summarizes method of heat application to carbonaceous substances as means to recover material's constituents. Basic components recovered are water, oils, gases, and carbon residue of char, charcoal, and coke. Material is packed around oven, and heat is applied from inside material. Sectional illustrations are presented which view coke ovens as well as interior heating still. Distillation results by this process are tabulated for various carbonaceous materials.

One component of carbon residue is smokeless fuel. This product is said to ignite quickly and may furnish an economical fuel which will eliminate smoke. According to bulletin, this method of heat application prevents cracking of oil vapors and they are recovered in petroleum-like form. Bul II is issued by Stilcol Company, Dept. CP, 1260 N. Mar Vista Ave., Pasadena, Calif. When inquiring specify CP 3344 on handy form, pages 2 and 3.

CHEMICAL PROCESSING

Application diagrams supplement line of liquid level controls

Sectional illustrations and schematic diagrams show variety of floatless liquid level controls. Units are intended for control of any liquid which is a conductor of electricity. They may be used for pumping or valving tasks, single or multiple signalling operations, flow controls, and other types of liquid level control. Instruments do not use floats, moving parts in liquid, or vacuum tubes. Application diagrams show units installed for pump-up or pump-down control in tanks containing sewage, acids, brine, plating solutions, well water, etc.

Multiple pump controls may be furnished with automatic change of sequence of two or more pumps. Pump alternators can be supplied for either pump-up or pump-down operation. Change of sequence is accomplished on each cycle of operation. This action tends to equalize wear on pumps and still provides combined capacity to meet peak demands. Among related items described in this 36-page booklet are magnetic starters, magnetic contactors, starter and relay combination, electrodes, etc.

Booklet is concluded with price list of various control instruments. "Floatless Liquid Level Controls" is issued by B/W Controller Corporation, Dept. CP, 2200 E. Maple Rd., Birmingham, Mich. When inquiring specify CP 3345 on handy form, pages 2 and 3.

Explains use of schedule numbers in power piping design

Eight-page bulletin is reprint of article on "How to Use Schedule Numbers in Power Piping Design." Digest explains relation of schedule number system to code formulas for determining wall thicknesses of piping.

Two charts are presented to guide selection of pipe wall thicknesses according to standard wall, extra-strong wall, and double extra-strong wall pipe. Tabular data offer dimensions of welded and seamless steel pipe. Information is calculated on basis of formulas said to have been adopted toward standardizing pipe practices.

Bul 515A is issued by Taylor Forge & Pipe Works, Dept. CP, Chicago 90, Ill. When inquiring specify CP 3346 on handy form, pages 2 and 3.

Historical approach marks digest of centrifugal machines

Twelve-page publication traces development of centrifugal machinery from 1852 to present day. Several modern units are shown, and two-color bulletin stresses the integration of centrifugal equipment into processing industries. Centrifugal baskets are available in sizes from 12 to 108" in diameter. Basket speeds range up to 3600 rpm, and units are capable of attaining centrifugal force 1800 times force of gravity. Machinery includes extractors, galvanizers, dryers, impregnators, etc.

Centrifugals are available with single-speed or two-speed drives, as well as variable-speed hydraulic drive. Processing applications relate to recovery of liquids from emulsions, removal of solids from liquids, clarification of liquids, and variety of other separating operations. "100 Years of Centrifugal Advancement" is issued by Tolhurst Centrifugals, Division of American Machine and Metals, Inc., Dept. CP, East Moline, Ill. When inquiring specify CP 3347 on handy form, pages 2 and 3.

7 SOUND REASONS WHY TRENTWELD IS BETTER

1. TRENTWELD large diameter (4" to 40") Stainless Tubing is precision-finished.
2. TRENTWELD large diameter Stainless Tubing is made in a tube mill by tube specialists.
3. Tested cold rolled sheets are completely fused into finished tubing without added rod metal.
4. No zone of weakness for corrosion to attack.
5. Uniform section, metallurgically correct.
6. Available for fabrication with your fittings, whether welded, van stone or clamp type.
7. All finishes available.



in
large
diameter
stainless
steel
tubing...

the TREND is to TRENTWELD

There is a strong trend to TRENTWELD in Large Diameter (4" to 40") Stainless Tubing and the reasons are sound. Fabricators, designers, manufacturers of all processing equipment find their most rigid specifications fully met by TRENTWELD.

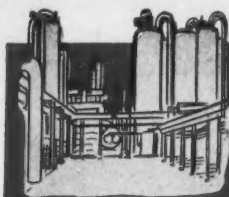
Further, there is more than top quality tubing in an association with TRENT. You gain engineering experience that is both broad and deep. You gain specific help in putting stainless tubing to work in your own application. Write for more data, and tell us about the particular applications you are working on right now.

TRENTWELD

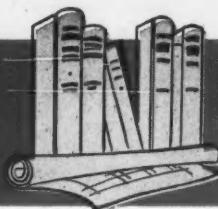
STAINLESS STEEL TUBING

TRENT TUBE COMPANY, GENERAL SALES OFFICES, EAST TROY, WISCONSIN (Subsidiary of CRUCIBLE STEEL COMPANY OF AMERICA)

When inquiring check CP 3348 on handy form, pgs. 2 & 3



Processing and Engineering Data



Partial Pressure of Hydrogen Chloride Over Hydrochloric Acid

By D. S. DAVIS

Professor of Chemical Engineering
Virginia Polytechnic Institute

DATA (1) on the partial pressure of hydrogen chloride over its aqueous solutions have been correlated by means of the equation

$$\log P = A - \frac{B}{T}$$

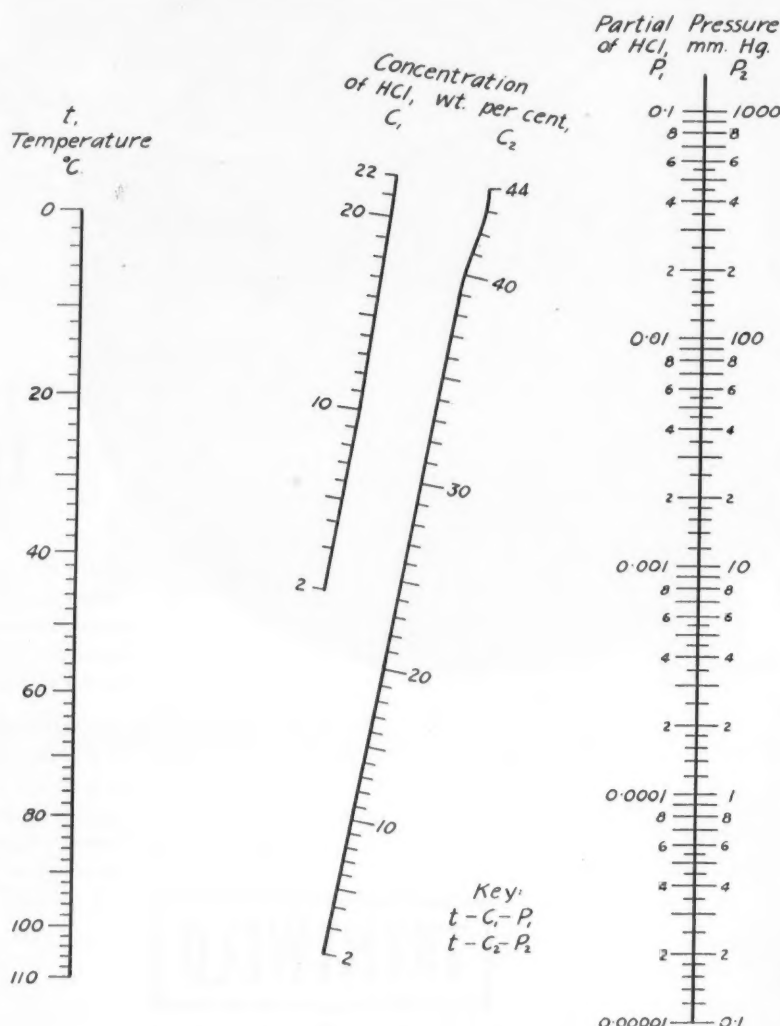
where P = partial pressure of hydrogen chloride in mm Hg

T = temperature in $^{\circ}\text{K}$

and A and B depend on the concentration C of the solution, in weight per cent. The accompanying line coordinate chart, based on this correlation, permits easy estimation of partial pressures for temperatures between 0° and 110°C at concentrations from 2 to 44 per cent of hydrogen chloride.

Use of the chart is illustrated by the following two examples: At 40°C what is the partial pressure of hydrogen chloride over a 7 per cent solution? Connect 40 on the t scale with 7 on the C_1 scale and read the desired value as 0.009 mm Hg on the P_1 scale.

What concentration of hydrogen chloride will insure a partial pressure of this gas of 40 mm Hg at 80°C ? Connect 80 on the t scale with 40 on the P_2 scale and read the concentration as 23 per cent on the C_2 scale.



Literature Cited

(1) Perry, J. H., Editor, "Chemical Engineers' Handbook," 3rd Edition, p. 167, New York, McGraw-Hill Book Co., Inc., 1950.

Chemical Processing — June, 1952

for CORROSION PROTECTION

AGILENE

(Polyethylene)

AGILIDE

(Hard Polyvinyl Chloride)

FABRICATED EXHAUST SYSTEMS

FUME STACK

EXHAUST
FAN & HOUSING

Exhaust Systems for
Corrosive vapors and
fumes...

- Complete or partial exhaust systems built to your specifications.
- Fabricated entirely from Agilene or Agilide.
- Will outlast STAINLESS STEEL, ALUMINUM, LEAD, etc.
- Can be incorporated into existing systems.

FUME DUCT

EXHAUST HOOD

LINED TANK



Pioneers in Plastic Welding

AMERICAN AGILE CORPORATION

Plant and General Offices

5461 DUNHAM RD., MAPLE HEIGHTS, OHIO

Mailing Address, P. O. Box 168 • Bedford, Ohio

When inquiring check CP 3349 on handy form, pgs. 23-25

CHEMICAL PROCESSING

Bulletin reviews line of abrasives, polishing wheels, and glue

Fifteen-page publication gives detailed information on polishing wheels and accessory products. Highlight of accessory list is Belgrade glue used to bind abrasives to surface of metal-polishing wheels. Glue is said to demonstrate water absorptive property which permits it to absorb about twice its own weight of water. This characteristic serves to supplement strength, viscosity, flexibility of glue. Wheels are made of canvas, tightly woven cotton fabric, felt, and sheepskin. Diameters of wheels vary from 4 to 10", and width of facing may range from 1/2 to 6". Bul W-103 is issued by Hanson-Van Winkle-Munning, Dept. CP, Matawan, N. J. When inquiring specify 3350 on handy form, pages 2 and 3.

Engineering memorandum covers centrifugally cast tubing

Seventeen-page memorandum bulletin provides engineering drawings of centrifugally cast tubing. Tubing is available in sizes up to 50" OD and in practically any analysis of carbon, alloy, stainless, and heat resisting steels. Wall thicknesses range from 1/4 to 4" with tube lengths up to 6'. Memorandum offers detailed information on characteristics, properties, analyses, and applications of tubing. Memorandum No. 11 is issued by Peter A. Frasse and Co., Inc., Dept. CP, 17 Grand St., New York 13, N. Y. When inquiring specify CP 3351 on handy form, pages 2 and 3.

Presents information for selection of roller gravity conveyors

Two-color booklet gives size and specifications data on roller gravity conveyors along with detailed construction characteristics. Since different installations require different sizes and types of rollers, the 28-page catalog explains how to determine which roller will be suitable for specific applications. Accessories are illustrated and described so that a complete gravity conveyor system can be planned. These accessories make possible changes in direction, coordination of several lines, and combination of gravity conveyors with live roll conveyors.

Several applications are illustrated to show variety of jobs that can be performed with this equipment. Rollers are sectionally illustrated and a chart provides means of determining width of curves for package clearances. "Lamson Roller Gravity Conveyors" is issued by Lamson Corporation, Dept. CP, Syracuse, N. Y. When inquiring specify CP 3352 on handy form, pages 2 and 3.

Teaches operation and set-up of metal working shaper

How-to-do-it manual outlines procedure for running metal working shaper. Over 65 photographs, diagrams, and exploded views show the internal parts of shaper. Set-up and operation of shaper are also discussed in 32-page handbook. Information tells how to grind various tool bits for shaper cuts and how to handle many job set-ups used in shaper work. Manual is intended for experienced machinist as well as the apprentice and is written so that details of shaper operation will be easily understood by beginner. Experienced operator may also find some machining short cuts.

To obtain "How to Run a Metal Working Shaper" remit 25c direct to South Bend Lathe Works, Dept. CP, 425 E. Madison St., South Bend 22, Ind.

NEW! NEW!

NEW Cloth Screen Dust Filter**SLY****DYNACLONE***

You saw this ad 2 years ago

offers 5 NEW ADVANTAGES!

Varying suction — old-style filter
Uniform suction — Dynaclone



1. Eliminates mechanical shaking.
2. Provides uniform suction at dust source.
3. Assures longer bag life . . . 4. minimum maintenance.
5. Keeps itself automatically and continuously clean without additional power or equipment.



Send for descriptive bulletin just out on the new SLY Dynaclone — the ultimate in filter performance.

*PATENTED

This revolutionary new dust filter is another SLY first. Extremely simple and thoroughly dependable, it eliminates entirely the gremlin of mechanical shaking and provides uniform suction of air at dust source.

This uniform suction is achieved by a simple device which cleans the filter bags successively by a reverse flow of air—the same suction which draws the dust onto the filter cloth is reversed to blow it off.

Since this reverse air suction operates continually, the new SLY Filter requires no shutdowns for removing dust from the cloth.

No mechanical shaking or flexing device is needed, eliminating all strain and wear.

The **Dynaclone isn't NEW any more!** It has been quietly at work in many industries with results beyond hopes and expectations.

The result of long experimentation and exhaustive tests, the SLY Dynaclone has thoroughly proved itself. It provides substantial savings over any other type of cloth screen dust collection. Write for complete information.

SLY PIONEERS and LEADERS in
INDUSTRIAL DUST CONTROL

THE W. W. SLY MANUFACTURING CO.
4754 Train Avenue • Cleveland 2, Ohio

 NEW YORK • CHICAGO • PHILADELPHIA • SYRACUSE
DETROIT • BUFFALO • CINCINNATI • ST. LOUIS
MINNEAPOLIS • BIRMINGHAM • LOS ANGELES • TORONTO

When inquiring check CP 3353 on handy form, pgs. 2-3

Calibrating and Sizing Rotameters

It is now possible to closely calculate needed size and characteristics of rotameters, and to accurately predict any deviation from original calibration. In a recently published handbook, methods, factors, and data are set forth which enable the engineer to specify standard rotameters for almost any liquid or gas. Calibration prediction methods allow him to come within fractions of a per cent of true flow for a given temperature and viscosity of liquid handled. Data given here is condensed from this handbook.

How to Use Prediction Curves

Prediction curves plot the flow coefficient (K) against a function of viscosity (N — the viscous influence number) for float positions of the rotameter. Height of float is given in these curves as a ratio of tube diameter to float head diameter (D_t/D_f). (See table B8-27-10 below.) From this plot, any one of three factors can be found when the other two are known. These are 1) tube taper, 2) flow coefficient, and 3) viscosity. Six sets of curves provide this information for all types of floats commonly used.

Initial data needed for calculations includes —

Meter data — float nomenclature (float shape, meter size, float material), tube nomenclature (beaded or plain taper, tube length)

Physical data — float weight (W_f), float head diameter (D_f), float density (ρ_f), fluid density (ρ), and fluid viscosity (μ).

This data hinges, in large part, on the meter selected for the job. Capacity, corrosion, and application are prime factors in determining this. Proper prediction curve must be found for the float shape employed.

First step is to find viscous influence number from this data —

$$N = \frac{\mu}{\sqrt{W_f \frac{(\rho_f - \rho)}{\rho_f} \rho}}$$

where:

μ = viscosity (cp)
 W_f = float weight (gm)
 ρ_f = float density (gm/ml)
 ρ = fluid density (gm/ml)

(Tables of float weights and float densities are given in handbook.)

Some common ρ_f values are:

Sin Stl	Hast B	Hast C	Phos-phor Bronze	Steel	Nickel	Monel
8.02	9.24	8.94	8.86	7.86	8.91	8.84

Next step is tabulating tube-to-float diameter ratio D_t/D_f and determining equivalent millimeter height above tube reference mark from tables in handbook. Typical table is shown:

**BEADED GLASS METERING TUBE
FOR USE WITH 10-INCH SCALE LENGTH
INDICATING METERS**

B8-27-10		
D_t/D_f	mm	Equiv % of Max Flow
1.35	---	---
1.30	---	---
1.25	230.0	91.5
1.20	181.0	71.5
1.18	161.8	63.5
1.16	142.3	55.5
1.14	122.8	48.0
1.12	103.6	40.5
1.10	84.5	33.5
1.08	65.8	26.5
1.07	56.7	23.0
1.06	47.5	20.0
1.05	39.1	17.0
1.04	30.5	13.5
1.03	22.0	10.5
1.02	13.2	---
1.01	4.7	---

Data used must correspond, of course, with tube type used.

Flow coefficient K is now determined from the appropriate prediction curve. For any value of viscosity influence number, a value of K will be found for each value of D_t/D_f tabulated. (See plot of K vs N.)

(Continued on page 188)

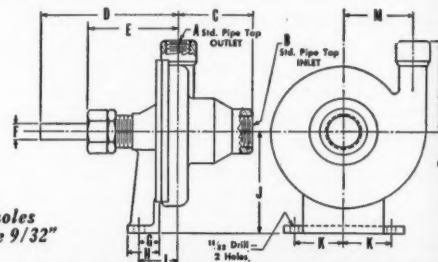


**Standard
OBERDORFER
Series G BRONZE
CENTRIFUGAL
PUMPS**

Centrifugal pumps must be primed or located below the level of the liquid to be pumped so that they will be gravity fed.

These pumps may be driven with a V belt pulley or directly connected to an electric motor by a flexible coupling. They are used for pumping fuel oil, gasoline, water, coolants, brines and many other liquids. The open impeller design permits the handling of a percentage of semi solids.

The 4G and 9G may be operated with a 1/4 horsepower motor. The efficiency of a centrifugal design is increased greatly by increasing the r.p.m. of the shaft. The 1G requires but a 1/2 horsepower motor when operating at 3450 r.p.m.



*Foot holes in base 9/32"

DIMENSION TABLE

No.	A	B	C	D	E	F	G	H	I	J	K	L	M
1G*	1/2	1/2	2 1/2	3 1/2	2 3/4	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
4G	1/2	1/2	2 1/2	3 1/2	2 3/4	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
9G	1	1 1/4	2 1/2	3 1/2	2 3/4	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2

CAPACITY TABLES

Pump No.	Speed	H.P.	Inlet	Outlet	Gallons Per Minute—Head in Feet							
					0	4	8	12	16	20	24	28
1G	1725	1/2	1/2	1/2	2.00	1.05	0.10	—	—	—	—	—
1G	3450	1/2	1/2	1/2	4.00	3.70	3.50	3.25	2.75	2.10	1.25	0.10
4G	1725	1/2	1/2	1/2	10.75	7.50	4.00	—	—	—	—	—
4G	3450	1/2	1/2	1/2	23.00	22.00	21.50	21.00	18.75	15.25	11.50	8.00
9G	1725	1/2	1 1/4	1	35.00	32.66	31.66	29.50	26.00	21.66	15.00	3.50

PRICE LIST

No.	1G	4G	9G
Price	\$9.25	\$16.00	\$24.00

**Industrial Pump Div., Oberdorfer Foundries, Inc.
626 Thompson Rd., Syracuse, N. Y.**

When inquiring check CP 3354 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

Displays infra-red analyzer for gas or liquid

Four-page bulletin provides illustrated review of infrared gas or liquid analyzer. Unit is designed for automatic analysis of fluid mixtures, precise control of continuous or batch type processes, and accurate measurement of toxic contaminants in atmosphere. Lira type analyzer is said to be sensitive to measurements as low as 2 ppm. Stability of unit is stated to be less than 2% full scale drift per day.

Approximately ten general applications are listed for analyzer. These uses include control of carbon monoxide in hydrogenation gases, analysis and control of chemical reactions or distillation products, and testing dehydration equipment. Bul 0705-1 is issued by Mine Safety Appliances Company, Dept. CP, Braddock, Thomas and Meade Sts., Pittsburgh 8, Pa. When inquiring specify CP 3355 on handy form, pages 2 and 3.

Brings together papers presented at US air pollution meeting

Much useful information is brought together in this 847-page book on the proceedings of the United States Technical Conference on Air Pollution which convened in Washington, May 3 to 5, 1950. Particularly informative is the presentation of the discussions of the second general session. Panel leaders recapitulate the papers presented, and there is an attempt to set forth those problems and aims which exist in common.

The conference was divided into seven panels: agricultural, analytical methods and properties, equipment, health, instrumentation, legislation, and meteorology. The greatest number of papers — of the 97 presented — concerned themselves with equipment for air pollution control.

Discussions here dealt with condensation techniques, spray and bubble towers, electrical precipitation equipment, role of activated carbon, and principles of the sonic smoke flocculator. The legislative panel presented aspects of laws governing Los Angeles; St. Louis; and Allegheny County, Pa.

Four papers within the instrumentation panel deal directly with the problem of SO₂ measurement and determination, while another group of four have some aspect of aerosols as their subject. To obtain "Air Pollution" remit \$12.50 direct to McGraw-Hill Book Co., Inc., 330 West 42nd St., New York 36, N. Y.

Simple language tells story of material handling equipment

Handbook of manual material handling equipment is divided into five sections and is freely illustrated. Non-technical language is used to describe industrial wheels, casters, two-wheel hand trucks, platform trucks, and trailers, skids, and pallets. Each section of manual tells how equipment is made, its application, and why it is made. Sections include guides to determine what consumer needs and to show correct use of equipment catalogs.

Information is intended for materials handling engineers, maintenance and warehouse superintendents, and purchasing agents. Manual attempts to acquaint these people with standard terminology of manual material handling equipment as well as its efficient and correct use. To obtain "Handbook of Manual Materials Handling Equipment," remit \$1.00 direct to Caster and Floor Truck Manufacturer's Association, Dept. CP, 7 W. Madison St., Chicago 2, Ill. When inquiring specify CP 3356 on handy form, pages 2 and 3.

FACT

Alcoa Aluminum Heat Exchanger Tubes require far less cleaning than Admiralty tubes in furfural service. Aluminum does not catalytically polymerize furfural. Furfural does not corrode aluminum. In metal costs alone, aluminum costs ½ less than Admiralty, ⅓ less than mild steel, ⅓ as much as stainless.

These are actual costs reports from cleaning operations conducted by The Shell Oil Company at Martinez, California.

TEST NO.	TUBE SIDE	SHELL SIDE	AREA (SQUARE FEET)	BRASS BUNDLE		ALUMINUM BUNDLE		ESTIMATED SAVINGS (DOLLARS PER YEAR)
				Inside	Outside	Inside	Outside	
15	85 per cent oil, 15 per cent furfural, 305° F	Raffinate 380° F	325	1½	4	6	18	1,000
16	85 per cent oil, 15 per cent furfural, 265° F	Raffinate 320° F	325	1½	4	6	18	800
18	17 per cent oil, 3 per cent water, 80 per cent furfural, 315° F	Dry furfural 418° F	1,600	4	4	18	18	1,000

ALCOA

knows most about the use and application of aluminum heat exchanger tubes

Alcoa pioneered the use of aluminum in heat exchanger tubes 43 years ago. Although their sale today is limited by government regulation, you will want to start planning with a copy of the booklet, *Alcoa Aluminum Heat Exchanger Tubes*. Write:

ALUMINUM COMPANY OF AMERICA • 1861-F Gulf Building, Pittsburgh 19, Pa.



OVER 6 MILLION FEET OF ALCOA TUBES ARE IN USE FOR APPLICATIONS LIKE THESE...

PETROLEUM

Condensers handling hydrocarbon fractions from such processes as Thermal and Catalytic cracking, reforming, polymerizing, etc.
Vapor recovery condensers
Lube oil coolers
Natural gas compressor after-coolers
Recompressor aftercoolers
Hydrogen sulfide gas coolers
Furfural condensers and heat exchangers

Propane chilling
Wax sweaters
Lean oil—rich oil exchangers
Amine solution coolers
Glycol-amine heat exchangers and reboilers
Jacket water coolers

CHEMICAL

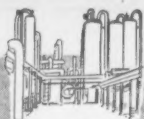
Butanol
Ethanol
Ethylene Glycol
Glycerin

Hydroabietyl
Isopropanol
Methanol
Phenol
Propylene Glycol
Acetaldehyde
Formaldehyde
Furfural
Heptaldehyde
Acetic acid
Stearic, Palmitic, Maleic Oleic acids
Butyric acid
Naphtha

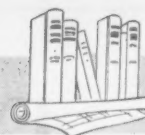
Ricinoleic acid
Acetanilide
Ammonia
Hydrogen Cyanide
Nitric acid (concentrated)
Pyridine
Hydrogen Sulfide
Benzene
Dichlorobenzene
Gelatin
Hydrogen Peroxide
Turpentine
Xylene

Use Alcoa Alclad 35-H14 Heat Exchanger Tubes with fresh, brackish and salt-cooling waters

When inquiring check CP 3357 on handy form, pgs. 2-3

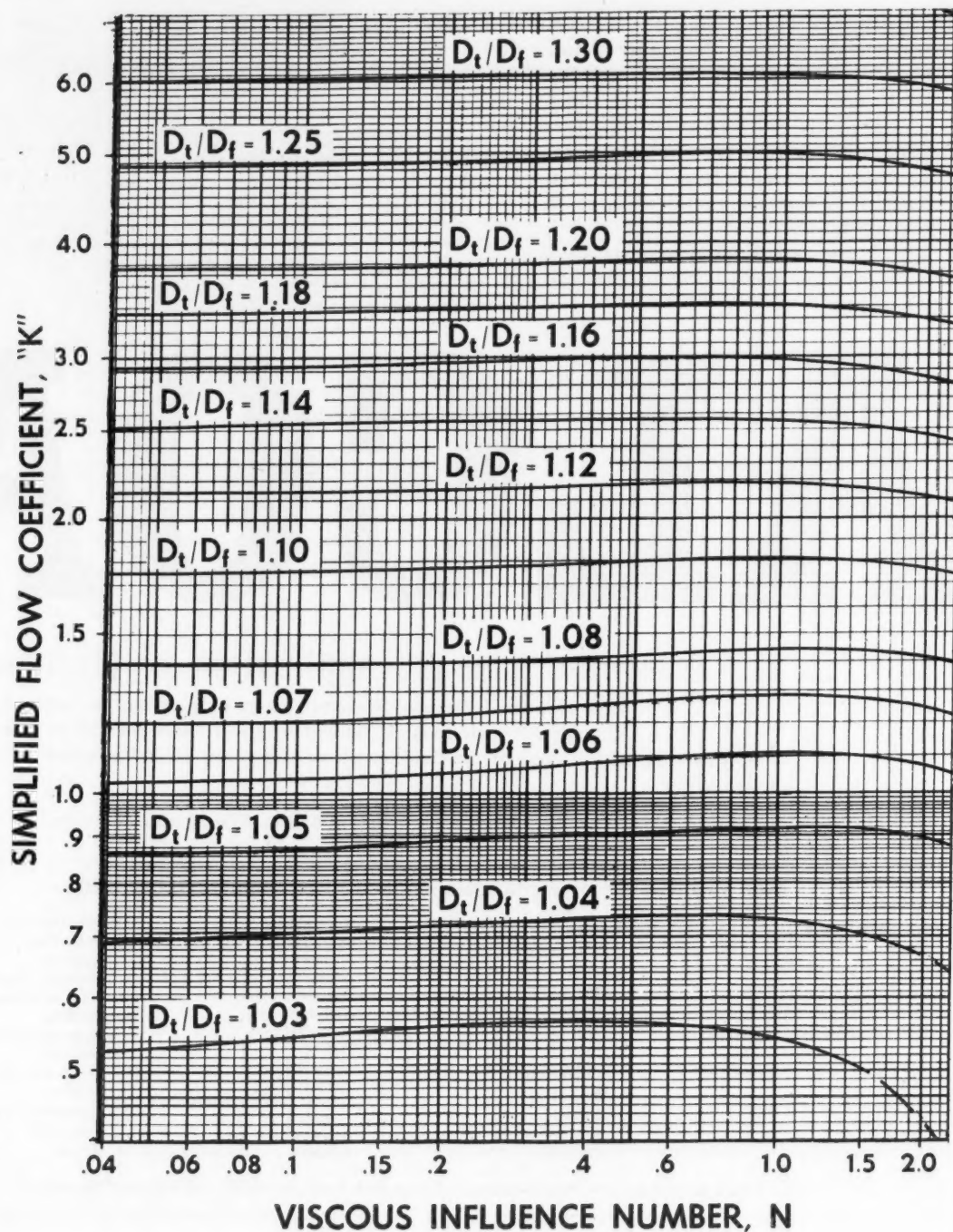


Processing and Engineering Data



Prediction Curve — (K vs N)

(Continued from page 186)



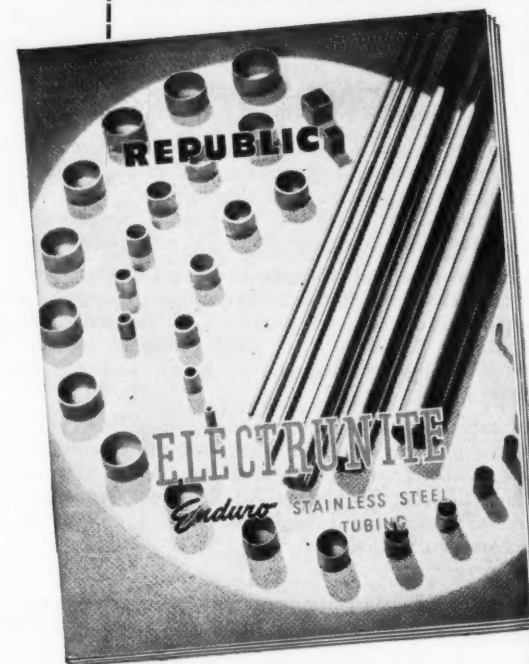
Chemical Processing — June, 1952

Get the Answers

on designing ...
fabricating

ELECTRUNITE ENDURO®

Stainless Steel Tubing
in this book ...



Write To:

REPUBLIC STEEL CORPORATION
STEEL AND TUBES DIVISION
224 EAST 131st STREET • CLEVELAND 8, OHIO



ELECTRUNITE®
STAINLESS STEEL TUBING AND PIPE

When inquiring check CP 3358 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Instrumentation booklet highlights spectroscopic analysis

Twelve-page publication reviews value and applications of emission spectroscopy. Booklet features direct reading spectrometer and lists several improvements which have been made in that instrument. Paramount interest in changing instrument was to increase its analytical capacity.

Nineteen improvements and additions are listed; and they range from an increase in selection of source parameters to installation of program control by mercury switches.

Comparison is drawn among analytical methods of wet chemistry, spectrographic analysis with photographic unit, and analyses with direct reading spectrometer. Comparison is based on time required, successive steps in procedure, and likelihood of human error. According to report, direct reading method took the least amount of time and minimized possibility of human error. However, this procedure is limited in its range of application.

Spectrographic analysis may find application in qualitative and quantitative analyses with an effective record of concentrations as low as one part in 100 million. Commercial testing may be applied to determining composition of metals, refractories, abrasives, glass, pigments, etc. Other instrumentation techniques are described and include such processes as flame photometry, infrared spectrophotometry, gas analysis, and evaporation of thin films under high vacuum.

"Better Analysis" is issued by Baird Associates, Inc., Dept. CP, 33 University Rd., Cambridge 38, Mass. When inquiring specify CP 3359 on handy form, pages 2 and 3.

AEC releases 5-year summary of US isotope distribution

Government report states that more than 600 universities, hospitals, and research laboratories in 46 states are using isotopes produced by AEC for biological, industrial, agricultural, and scientific research. This report is five-year summary of isotope applications and distribution in US. According to summary, more than 18,900 shipments of radioactive isotopes and 1500 stable isotopes have been made to users in US. Approximately 1100 radioactive isotope shipments were made to users outside US.

Growth of isotope program is summarized and discussion covers various uses of isotopes. List of users is included in document as well as 1400 technical reports and papers published on isotope work in past two years. This report "Isotopes — A Five Year Summary of U. S. Distribution" costs \$1.00. A summary of this report has been compiled which reviews isotope applications considered to be of significance to industry. It is known as document TID-5078 and is available at charge of 30c. Either publication may be obtained from U. S. Government Printing Office, Washington 25, D. C.

Refractory products for firebox and other heating boilers

Six-page bulletin covers application of monolithic linings to firebox and similar types of heating boilers. Bulletin reviews air cooled as well as solid refractory construction. Multi-rib steel base is feature of solid refractory type boiler. Engineering specifications are also included for refractory lining and outside wall construction (either brick or steel).

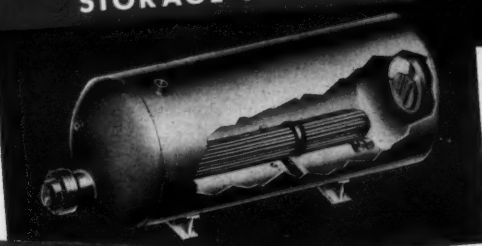
Form 11-2-S2MP is issued by Plibrico Jointless Firebrick Co., Dept. CP, 1800 Kingsbury St., Chicago, Ill. When inquiring specify CP 3360 on handy form, pages 2 & 3.

JUNE, 1952

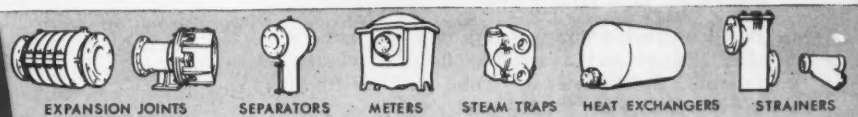
ADSCO INSTANTANEOUS HEATERS

**STORAGE HEATERS**

Choose ADSCO when you want a dependable instantaneous heater. For ADSCO specializes in instantaneous heaters, making all types in any size you need. Heater shells are seamless steel pipe, carefully cut and welded. Tube bundles of pure deoxidized seamless copper tubing formed into U-bends. Semi-steel covers are high-tensile, fine-grained castings. ADSCO heaters are ideal for general service hot water, process work, swimming pools, dishwashing machines... Write for ADSCO's new fact-filled, 56-page bulletin. The most complete, authoritative publication in the industry.

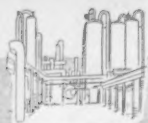
**STEAM TRAPS**

ADSCO
75 YEARS OF
LEADERSHIP



AMERICAN DISTRICT STEAM COMPANY, INC.
NORTH TONAWANDA, NEW YORK

When inquiring check CP 3361 on handy form, pgs. 2-3



Processing and Engineering Data



(Continued from page 188)

Basic flow equation . . .

$$W = KD_f \sqrt{W_f \frac{(\rho_f - \rho)}{\rho_f} \rho}$$

where:

W = weight rate of flow (lb/min)

K = flow coefficient

D_f = float diameter (inches)

W_f = float weight (gm)

. . . is converted into a working equation by establishing an instrument constant which includes all physical constants of the basic equation except the value of K . Instrument constant will also include factors to convert weight rate of flow to desired units (usually gpm for a liquid, SCFM for a gas).

Thus instrument constant (IC) is:

$$IC = \frac{D_f \sqrt{W_f \frac{(\rho_f - \rho)}{\rho_f} \rho}}{8.34 \text{ lb/gal} \times \rho} \text{ (in gpm)}$$

When IC is multiplied by tabulated values of K , actual values of per cent of maximum flow corresponding to millimeters rise (meter reading) are obtained. These can be checked against original calibration and either calibration or deviation (correction) curves can be plotted.

Typical Example

Suppose a normal flow of 10 gpm of SAE 30 oil is to be metered at 150°F. Viscosity at this temperature is 34 centistokes, density 0.86 gm/ml. Maximum flow will not exceed 17 gpm.

In order to select a suitable meter, flow is reduced to an equivalent flow of water by this empirical formula:

$$\text{Equivalent gpm H}_2\text{O} = \frac{2.65 \rho \times \text{gpm}}{\sqrt{(\rho_f - \rho) \rho}}$$

where:

ρ = fluid density 0.86 gm/ml

ρ_f = float density 8.02 gm/ml for stainless

gpm = maximum flow 17 gpm

$$\text{Equivalent gpm H}_2\text{O} = \frac{2.65 \times .86 \times 17}{\sqrt{(8.02 - .86) .86}}$$

Equivalent gpm H₂O = 15.6

Based on this, a size #8, Fig 735 rotameter with steel fittings and a stainless float is selected as suitable. Stock meter is: Tube — B8-27-10, Float — BSVT-83, W_f = 313 gm.

Now to find N

$$N = \frac{\mu}{\sqrt{W_f \frac{(\rho_f - \rho)}{\rho_f} \rho}}$$

where:

μ = viscosity cp (In order to convert centistokes to cp, multiply by density — 34 centistokes x .86 gm/ml.)

W_f = float weight 313 gm

$$N = \frac{34 \times .86}{\sqrt{313 \times \frac{8.02 - .86}{8.02} \times .86}} = \frac{29.2}{\sqrt{240.5}}$$

$N = 1.88$

And the instrument constant must be

$$IC = \frac{D_f \sqrt{W_f \frac{(\rho_f - \rho)}{\rho_f} \rho}}{8.34 \rho} \times \frac{100}{17}$$

where:

D_f = float head diameter 1.505 inches

8.34 = conversion factor lb H₂O/gal

100/17 = scale divisions ÷ max flow

$$IC = \frac{1.505 \times \sqrt{240.5}}{8.34 \times .86} \times \frac{100}{17}$$

$IC = 19.16$

Now, a) find values of K from plot

b) tabulate them as shown

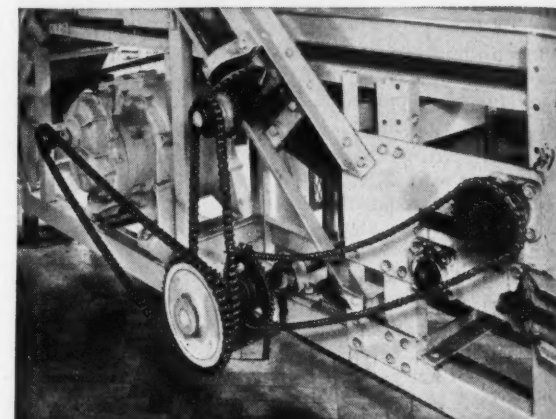
c) multiply $K \times IC$ for each value of D_f/D_t and tabulate actual per cent of maximum flow

D_f/D_t	K (from plot) with $N = 1.88$	Actual % of max flow	% of max flow from original calibration	Deviation % of max
1.25	4.81	92.1	91.5	0.6
1.20	3.73	71.4	71.5	-0.1
1.18	3.31	63.4	63.5	-0.1
1.16	2.88	55.2	55.5	-0.3
1.14	2.49	47.7	48.0	-0.3
1.12	2.13	40.8	40.5	0.3
1.10	1.78	34.1	33.5	0.6
1.08	1.42	27.4	26.5	0.9
1.06	1.08	20.7	20.0	0.7
1.04	0.68	13.0	13.5	-0.5
1.03	0.46	8.9	10.5	-1.6

From which correction or calibration curves can be drawn.

Forty-page handbook contains much other information besides that outlined here. For example, methods are given for altering capacity of a rotameter and corrections for changes in fluid conditions are shown. Numerous curves and tables show factors like pressure drop across various meters, safe working pressures, and construction details. "Variable-area Flow Meter Handbook" is issued by Fischer & Porter Company, Dept. CP, Hatboro, Pa. When inquiring specify CP 3362 on handy form, pages 2 and 3.

FOR SHOP DRIVES of Every Kind!



DIAMOND ROLLER CHAINS and SPROCKETS



Rugged, versatile, uniform highest quality Diamond Roller Chains and Stock Sprockets meet most every shop drive problem. Their high (98-99%) efficiency and exceptional long life provide great operating economy. Installation is quick and easy regardless of shaft center distances and speed ratios. Operation is smooth, quiet, easy on bearings.

Diamond Roller Chains and Stock Sprockets are available in a wide range of types and sizes to fill practically every drive requirement. Write for Catalog 709.

DIAMOND CHAIN COMPANY, Inc.

Dept. 411, 402 Kentucky Avenue, Indianapolis 7, Indiana

Office and Distributors in All Principal Cities

Refer to the classified section of your local telephone directory under the heading CHAINS or CHAINS-ROLLER

DIAMOND ROLLER CHAINS

When inquiring check CP 3363 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

Shows steam generator construction

Eight-page bulletin offers complete description of manufacturer's line of steam generators. Three-color publication provides detailed listing of auxiliary equipment. Typical boiler room layout is shown in blueprint drawing with appropriate dimensions.

Bul 1050 is issued by Ames Iron Works, Dept. CP, Box R-1, Oswego, N. Y. When inquiring specify CP 3364 on handy form, pages 2 and 3.

Preparation and use of lithium stearate

Technical service report describes preparation and use of lithium stearate in the making of grease. Components and method of preparing lithium greases are said to be more efficient than formulation previously used. Tables and graphs are also included to show typical properties of lithium stearate and its performance in various base oils.

Report M-12 is issued by Witco Chemical Company, Dept. CP, 295 Madison Ave., New York 17, N. Y. When inquiring, specify CP 3365 on handy form, pages 2 and 3.

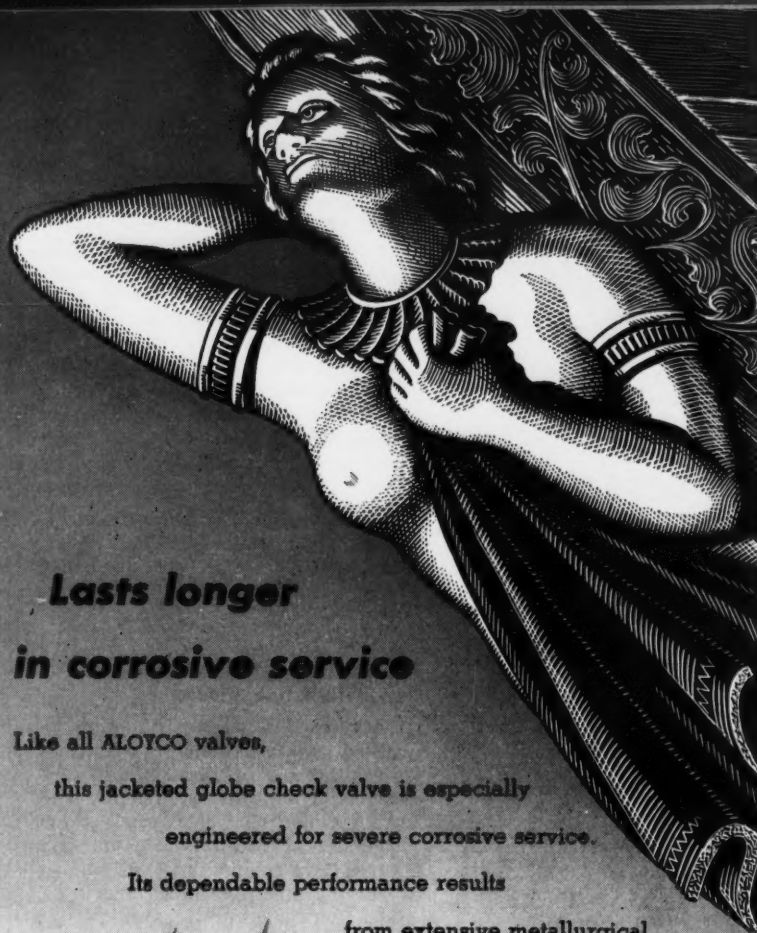
Properties of expanded polystyrene plastic

Twenty-page bulletin gives general properties of expanded polystyrene plastic. Reviews current application of material to low temperature insulation, buoyancy, and decorative fields. Booklet also explains some fabricating and finishing techniques used with plastic. "Styrofoam" is issued by The Dow Chemical Company, Midland, Mich. When inquiring specify 3366 on handy form, pages 2 & 3.

Displays assortment of filter models

Four-page catalog reviews standard line of filters. Units are intended for clarification of industrial liquids and various gases. Approximately 13 different types of filter are illustrated and briefly described. Cat PL-200 is issued by Commercial Filters Corporation, Dept. CP, 18 W. 3rd St., Boston 27, Mass. When inquiring specify CP 3367 on handy form, pages 2 and 3.

For more information on product at right, specify CP 3368
see information request
blank between pages 2-3.



Lasts longer in corrosive service

Like all ALOYCO valves,

this jacketed globe check valve is especially

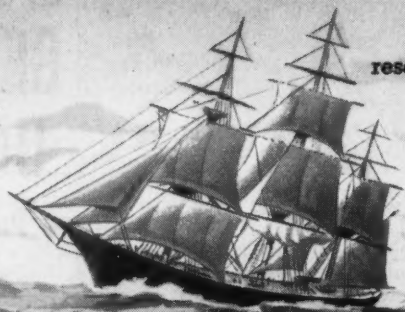
engineered for severe corrosive service.

Its dependable performance results

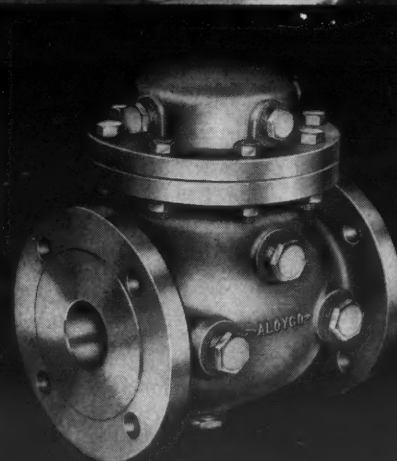
from extensive metallurgical

research and production of

high alloy valves exclusively.



ALOYCO No. 1305 Jacketed
Check Valve has a built-in heating chamber or
jacket on both body and cap which
enables all parts to be
uniformly heated.



CALCO standardizes on ALOYCO valves for handling sulfuric acid

THE CORROSIVE: 93% and 98% sulfuric acid, 96% mixed sulfuric acid, oleum.

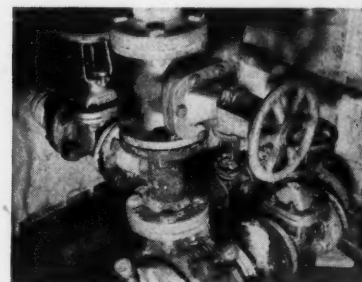
THE APPLICATION: Handling of sulfuric acid for manufacture from ilmenite ore of titanium dioxide, used as an additive to paints, rubber, paper, plastics.

THE PLACE: American Cyanamid Company, Calco Chemical Division, Gloucester City, N. J.

THE VALVES: ALOYCO 20 No. 111-A gate valves, flanged; No. 571 swing check valves, flanged; both Teflon packed.

THE RESULT: Former steel valves leaked at packing glands, causing corrosion of steel stem, stuck frequently in open or closed position. They lasted only a matter of months. Calco has now standardized on ALOYCO 20 valves for handling strong acid throughout the plant. Their service life is now five or six times as long as valves formerly used.

THE BACKGROUND: ALOYCO concentrates on valves for such severe corrosive service. Our foundry practices, our machines and our tools are designed for the production of high alloys alone.



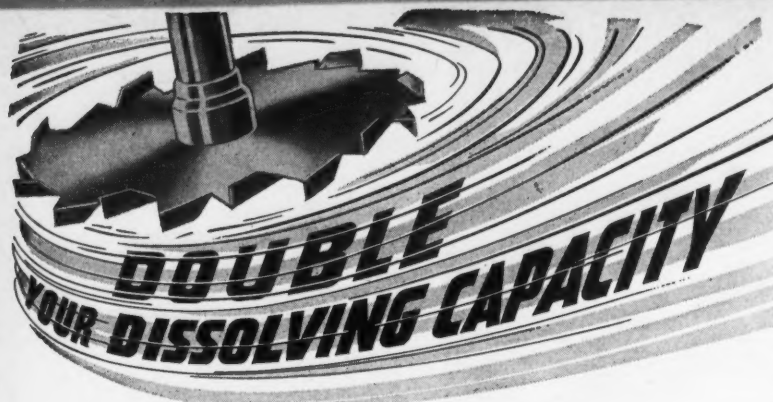
ALOYCO 20 valves are used in three sulfuric acid handling areas: (1) Acid pumped from barges into main outside storage tanks; (2) Outside pump house pumps acid to smaller storage tanks inside main building; (3) Main inside pumps distribute acid to various reactors.

Our Aloyco Corrosion Clinic specializes on problems of corrosion, contamination, discoloration, high and low temperature service.

If you have such problems in your plant, perhaps you too can profitably standardize on ALOYCO valves. Just ask ALOYCO.

ALOYCO STEEL PRODUCTS CO., INC.
1302 West Elizabeth Avenue, Linden, N. J.

Longer Lasting
ALOYCO VALVES
1st in Corrosive Service



with the Cowles DISSOLVER

Now—there's no need to make more room for mixing equipment with the Cowles Dissolver. This high-speed unit dissolves and disperses 2 to 20 times faster—more than doubles your present capacity right in the same working space!

With the Cowles Dissolver, the impeller blade operates at velocities up to 7500 f.p.m. Result: speedier operation, savings in time and labor *plus* a greatly improved product! In lacquer plants, for example, the Cowles Dissolver makes heavy resin cuts—pro-

duces stabilized lacquer. Because it's engineered for a specific job, it actually performs tasks conventional mixers cannot. It's ruggedly designed, simple to maintain and fast, easy loading.

● Get all the facts on Cowles Dissolvers—write for catalog today. And let us run a detailed test of your materials at no obligation or cost—simply ask for size sample to send.



The Cowles Company
INCORPORATED
113 Trackside • Cayuga, N. Y.

When inquiring check CP 3369 on handy form, pgs. 2-3



An EASIER WAY To Remove Packings Use DURA HOOKS

Rugged, flexible, hand-tools that "work around corners" for removing old packing from stuffing boxes. They **SAVE TIME** . . . put an end to fussing and cussing . . . improves your manpower efficiency. WRITE FOR DURA HOOK Bulletin DHCP covering SIZES and PRICES.

★ All Steel
Flexible
shaft
Tempered
tool steel
corkscrew
bit

DURAMETALLIC
KALAMAZOO



CORPORATION
MICHIGAN

When inquiring check CP 3370 on handy form, pgs. 2-3

NEW LITERATURE

Schematic illustrations view conveyor systems

Eight-page bulletin presents several photographs and schematic illustrations of pneumatic conveyor systems for handling granular or dry, pulverized materials. Equipment may be used for loading or unloading silos, bins, cars, ships, and barges. Conveyors are available with manual or automatic and remote control. They also find service in mixing and blending dry raw materials. Bulletin concludes with miscellaneous equipment such as rotary valves, two-way valves, material-level indicator, and feeders.

Bul G-1 is issued by Fuller Company, Dept. CP, Catasauqua, Pa. When inquiring specify CP 3371 on handy form, pages 2 and 3.

Contains performance data on ventilation filters

Eight-page illustrated bulletin describes ventilation and air conditioning filters. Two-color bulletin contains specifications, engineering and performance data. Material covers various types of filters recommended for removal of dust and other foreign matter by impingement method.

Bul 100 is issued by Dollinger Corporation, Dept. CP, 11 Centre Park, Rochester 3, N. Y. When inquiring specify CP 3372 on handy form, pages 2 and 3.

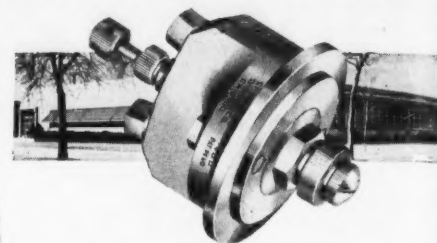
Illustrated review of flow meters

Two-color catalog describes an assortment of flow meters and accessories for liquid, gas, steam or vapor service. Highlight of meter is pressure seal bearing which is said to be leaktight against 5000 psi, utilize replaceable shafts, and not require periodic lubrication maintenance.

Sectional and cutaway illustrations are shown of various meters and accessories. This would include items such as differential producer or primary device, recorders, controllers, indicators, and integrators. Latter is used to automatically total the number of flow units which have passed through line in any given period of time.

Conclusion of 37-page bulletin reviews units for mercury—less flow measurement, measurement in open channels, and with low rates of flow. Bul 460 is issued by The Foxboro Company, Dept. CP, Foxboro, Mass. When inquiring specify CP 3373 on handy form, pages 2 and 3.

to the 99 plants in 100 who use SPRAY NOZZLES



WRITE
FOR

In the search for doing things better and faster, have you overlooked the importance of spray nozzles? Your application may be commonplace or complex . . . but whatever it is, properly engineered spray nozzles can make a vast difference. Let Spraying Systems Co., America's foremost authority on industrial spray nozzles show you why and how. As a first step, write for catalogs.

SPRAYING SYSTEMS CO.
Engineers and Manufacturers
3216 Randolph Street
Bellwood, Illinois

Catalog No. 22
General Industrial Spray Nozzles
Catalog No. 23
Pneumatic Atomizing Nozzles

When inquiring check CP 3374 on handy form, pgs. 2-3

GET COMPLETE FACTS ON GRINDING MILLS

• Pebble Mills • Ball Mills • Rod Mills

Write for this *useful* 44-page book, Bulletin 07B6718A. Full of *helpful* facts on:

- Grinding media action.
- Mill applications.
- Wet vs dry grinding.
- Grinding circuits.
- Critical mill speeds.
- Grindability indices.



ALLIS-CHALMERS
Milwaukee 1, Wis.

Company.....
Attention of.....
Address.....
City..... State.....

ALLIS-CHALMERS

When inquiring check CP 3375 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Stresses meaning of grain size in specifying brass stock

Grain size is so important in determining qualities of brass stock that this four-page bulletin refers to it as "The 4th Dimension" to be specified. Using graphs and photomicrographs, the two-color publication compares properties of annealed and cold-rolled brass to show how different they are. Short paragraphs accompanying actual pictures of the enlarged grains, show gradual (and sometimes abrupt) changes that result from increased or decreased grain size.

Concluding the bulletin is a page devoted to pictures of facilities at manufacturer's plants and mills. It points out that technical service can often aid in specification of material where problems such as grain size are important. "The 4th Dimension" is issued by Bridgeport Brass Co., Dept. CP, 30 Grand St., Bridgeport 2, Conn. When inquiring specify CP 3376 on handy form, pages 2 and 3.

Explains operating principles of transformers

Twelve-page bulletin reviews operating characteristics of several different transformers. Detailed information covers linear transducers and their varied application in industry. Approximately 56 illustrations and wiring diagrams are presented in two-color bulletin. Descriptive material surveys various types of indicators, recorders, pressure transmitters, and control relays. Also included in catalog of industrial instruments are amplifiers, load cells, demodulators, micrometer positioners, and servo mechanisms.

Concluding feature of bulletin is illustrated digest of basic applications of differential transformer in measuring and control of variables. Bul R-31 is issued by Automatic Temperature Control Company, Dept. CP, 5200 Pulaski Ave., Philadelphia 44, Pa. When inquiring specify CP 3377 on handy form, pages 2 and 3.

Gives accurate and reproducible temperature control

Four-page specification sheet describes controller which incorporates millivoltmeter pyrometer and galvanometer assembly which responds to any change in thermocouple emf. Unit is said to provide knife-edge control with snap-action at the control point. It is available with one, two or three position electronic control. Both measuring and control mechanisms are plug-in units for ease of removal or replacement. This is also intended to simplify changing of range or control form.

Controller is pictured and sectional illustrations are accompanied by general dimensions. Tabular material lists control forms and scale ranges. Spec Sheet 114 is issued by Brown Instruments Division, Minneapolis-Honeywell Regulator Company, Dept. CP, Wayne and Windrim Aves., Philadelphia 44, Pa. When inquiring specify CP 3378 on handy form, pages 2 and 3.

Flexibility of new tracing cloth is permanent

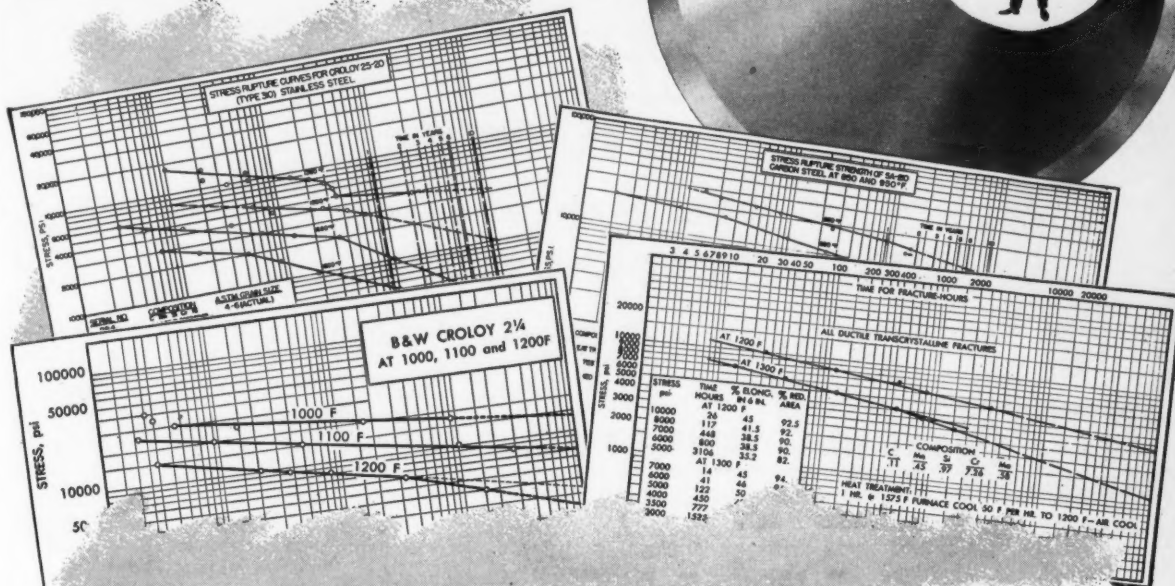
Four-page, two color booklet describes the recently developed tracing cloth. Translucency, color, flexibility, and drawing surface are retained through the years. The cloth will not turn yellow or become brittle despite long storage.

Booklet A-2029 is issued by Charles Bruning Company, Inc., Dept. CP, Teterboro, New Jersey. When inquiring specify CP 3379 on handy form, pages 2 and 3.

JUNE, 1952

let's take a
CLOSER LOOK
at

STRESS RUPTURE



In evaluating the suitability of various tubes for high pressure, high temperature applications, consideration of their stress-rupture properties is of major importance to avoid misapplication and consequent possibility of costly service failures.

B&W's long experience with tubing applications in the petroleum and chemical processing industries, where stress and temperature conditions often are acute, has led B&W to conduct complete, analytical stress-rupture tests far exceeding conventional practice so as to answer the most exacting questions of tube applications in modern processing conditions.

In essence, the stress-rupture test is an over-loaded creep test which is continued to actual failure of the specimen. Destructive testing of this kind acknowledges theoretical approach, but at the same time circumvents it by simulating the worst possible conditions that would likely be encountered in actual service. Through such long-term tests extrapolation is reduced to the

minimum with the result that possibility of error in determining stress-rupture limits of tubing materials is minimized.

From curves like those shown above and other available stress-rupture data, it is possible to closely determine: (1) the amount of extension, or elongation, various metals will stand under given stress and temperature conditions before rupture occurs, (2) how long various metals can be overheated under given stress without failing due to rupture.

Investigation of stress-rupture properties of tube-steels is a continuing activity at B&W. Facilities devoted to this purpose are among the most extensive available anywhere.

If rupture strength is your tube problem, consult Mr. Tubes—your B&W Tube Representative. Available through him is a wealth of experience and technical data on the behavior of carbon, alloy, and stainless steel tubes at elevated pressures and temperatures.

Shown above are some of the stress-rupture data available on B&W Tubes. Copies will gladly be supplied to anyone concerned with the design, operation and maintenance of tube installations in high pressure, high temperature services.

THE BABCOCK & WILCOX COMPANY TUBULAR PRODUCTS DIVISION

General Offices & Plants

Beaver Falls, Pa.—Seamless Tubing; Welded Stainless Steel Tubing
Alliance, Ohio—Welded Carbon Steel Tubing

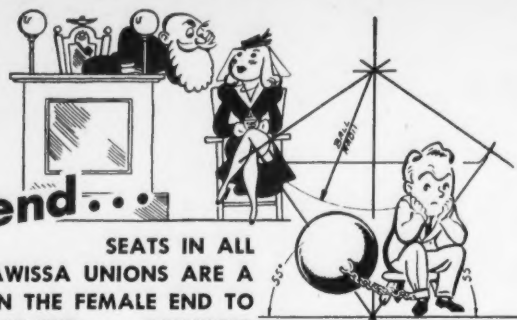
Sales Offices: Beaver Falls, Pa. • Boston 16, Mass. • Chicago 3, Ill.
Cleveland 14, Ohio • Denver 1, Colo. • Detroit 26, Mich. • Houston 2,
Texas • Los Angeles 17, Cal. • New York 16, N. Y. • Philadelphia 2,
Pa. • St. Louis 1, Mo. • San Francisco 3, Cal. • Syracuse 2, N. Y.
Toronto, Ontario • Tulsa 3, Okla.



TA-16535

When inquiring check CP 3380 on handy form, pgs. 2-3

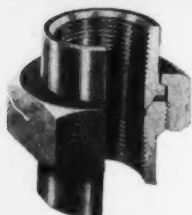
it's the
ANGLE
on the
female end...



SEATS IN ALL
CATAWISSA UNIONS ARE A
55° ANGLE ON THE FEMALE END TO
A BALL ON THE MALE END... ASSURING
A PERFECT SEAL EVEN THOUGH THE PIPE IS NOT IN ALIGNMENT!

PERFECT SEAL

catawissa unions
are made by
union specialists!



see the complete line... write for Catalog 11
a type for every use... all temperatures, all pressures!

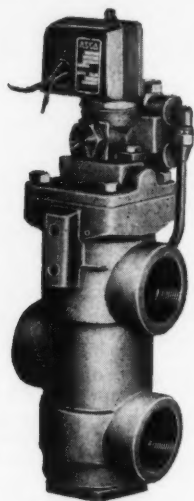
CVF

CATAWISSA VALVE & FITTINGS CO.

450 MILL ST.

CATAWISSA, PENNA.

When inquiring check CP 3381 on handy form, pgs. 2-3



3-Way Full Area, Packless Solenoid Valves

PIPE SIZES: 1, 1 1/4, 1 1/2 and 2 inches

We recommend this valve for controlling equipment where pressure must be alternately applied and exhausted as, for example, with diaphragm motor valves, air or hydraulic cylinders, etc. Classed as Bulletin 8331 ASCO Valves, here are a few specifications: maximum pressure 125 to 250 pounds; minimum pressure 10 to 20 pounds. Suitable for handling air, water, gas, oil and other non-corrosive gases or liquids up to 180°F.

Since the automatic control of any alternating application and release of pressure is so important for efficient operation, we suggest that you bring your problems to the attention of our engineers whose experience goes back nearly 40 years.

If you have recurrent and varying needs for automatic control valves, you should have our General Valve Catalog No. 23.



When in need of Automatic Transfer Switches, Remote Control Switches, Contactors, Relays, and Specialized Electromagnetic Controls, come to us.

V-51-6

Automatic Switch Co.
379 LAKESIDE AVENUE • ORANGE, NEW JERSEY

When inquiring check CP 3382 on handy form, pgs. 2-3

NEW LITERATURE

Sets forth basic facts of air conditioning

Eight-page reprint contains a 17 x 11" tipped-in, four-color psychrometric chart. Concern of the paper is a statement of basic facts and methods of air conditioning and refrigeration for industry. While it says that "industrial air and refrigeration systems cannot be picked out of catalogs or reference books..." this paper makes clear that it is essential to understand fundamentals in selecting a system.

While no detailed mathematics are used, six separate methods are compared. Relative merits of 1) refrigeration and absorption, 2) refrigeration, 3) absorption, 4) adsorption, 5) well water, and 6) outside air are pointed up — with their proper applications and limitations. Shaded areas (in color) show the regions of chart to which each applies.

This valuable paper is reprinted from the "Confectioners Journal" and is available from V. P. Victor, M.E., Consulting Engineer, Dept. CP, 140 Cedar St., New York 6, N. Y. When inquiring specify CP 3383 on handy form, pages 2 and 3.

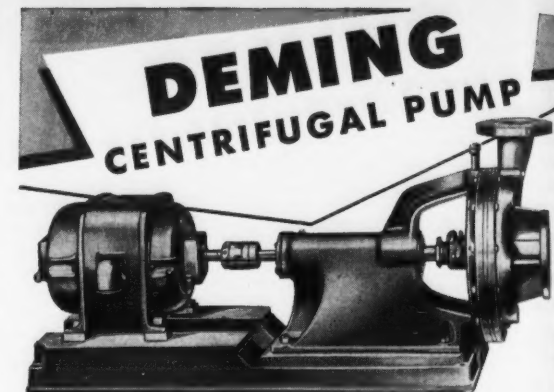
Reviews particulars of Teflon packing

Catalog sheet gives information on Teflon impregnated braided white asbestos packing, which can be furnished in coil form or solid continuous ring form. Offers recommended applications, and lists chemicals against which packing may be used. "Teflon Does The Job" is issued by Flexrock Company, Dept. CP, 3668 Cuthbert St., Philadelphia 4, Pa. When inquiring specify CP 3384 on handy form, pages 2 and 3.

Gives reactions and specs on capryl alcohol

Twelve-page booklet reviews properties and reactions of capryl alcohol (octanol-2). Booklet surveys physical properties of two available grades, and outlines chemical reactions which capryl alcohol undergoes in organic syntheses. Among reactions offered are those involving esterification, dehydration and dehydrogenation, etherification, acetal formation, and alkylation.

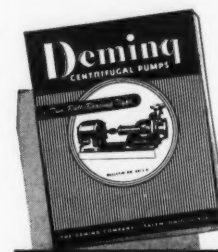
Properties of capryl alcohol as a solvent and anti-foaming agent are also discussed. Booklet "Capryl Alcohol" is issued by Rohm & Haas Company, Dept. CP, Washington Square, Philadelphia, Pa. When inquiring specify CP 3385 on handy form, pages 2 & 3.



Designed with separate liquid end to permit economical use of special alloys on parts coming into contact with corrosive liquids. This saves you money on first cost and upkeep cost. Built in full

range of capacities from 10 to 3600 G.P.M. in sizes 1" to 10" discharge. Can be furnished for either the standard electric motor drive (as illustrated) or for gasoline engine or belt drive. Write for BULLETIN 4012-A.

THE DEMING CO.
522 BROADWAY
SALEM • OHIO

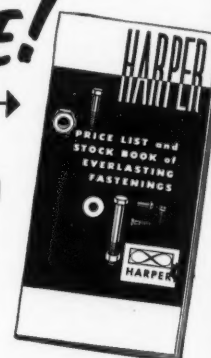


When inquiring check CP 3386 on handy form, pgs. 2-3

LOOK HERE!

FOR FASTENINGS THAT RESIST CORROSION

Here's a *bookful* of ready answers to your corrosion problems... the handy 56-page Harper Stock Book and Price List. It gives you information on all Harper Everlasting Fastenings—bolts, screws, nuts, washers, rivets and accessories in brass, bronze, copper, aluminum, stainless, Monel and other alloys—all products of America's leading manufacturer specializing in corrosion-resistant fastenings. Over 7000 items in stock and ready for delivery from warehouses and distributors, coast to coast!



This coupon will bring your copy!

The H. M. Harper Co.
8241 Lehigh Ave., Morton Grove, Ill.
Rush my copy of the Harper catalog.

Name.....

Company.....

Position.....

Address.....

City.....Zone.....State.....



**SPECIALISTS IN ALL
NON-CORROSIVE METALS**

When inquiring check CP 3387 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

Psychophysics of color as applied in science and industry

Thorough coverage is given to psychophysics of color in 401-page book. Many facets of color are treated as they relate to practical applications in business, industry, and science. Work is divided in three sections which treat 1) basic facts of color, 2) tools and techniques in colorimetry, and 3) physics and psychophysics of colorant layers. Descriptive material is supplemented with approximately 500 charts, tables, and graphs.

First section of book discusses fundamental concepts of vision and how coloring may appear from customer's point of view. Pigments, dyes, radiant energy, and the spectrum are briefly discussed in addition to various aspects of normal and color deficient vision. Second section deals with spectrophotometry and fundamental standards in colorimetry. Section answers questions as to when spectrophotometer should be used, when photoelectric colorimeter should be used, and when both instruments may be applied. Section closes with review of color names and terms applied in fields of chemistry, physics, psychophysics, etc.

Concluding section of book discusses various coloring problems industry has encountered with layers of compounded colorants. The various degrees of gloss and opacity or hiding power are reviewed in regard to compounding and applying colored layers. Other topics include methods of analyses, identification of colorants, and formulation of colorants. An alphabetical list of references is appended to book as guide to further investigation.

To obtain "Color in Business, Science and Industry," remit \$6.50 directly to John Wiley & Sons, Inc., Dept. CP, 440 Fourth Ave., New York 16, N. Y. When inquiring specify CP 3388 on handy form, pages 2 and 3.

Circuit-breaker panelboards handle 120 to 600 v AC

Eight types of circuit-breaker panelboards are presented in 24-page bulletin. In compliance with National Electrical Code specifications, panelboards are built to accommodate up to 42 branch pole units. Equipment is designed to meet breaker requirements for lighting circuits and power distribution. Units may be used in service voltage range from 120 to 600 v AC and for 125/250 v DC. Breakers are enclosed in individual plastic cases and have interrupting ratings proportional to load.

Introductory pages aid selection of electrical equipment to meet requirements. Typical specification outlines are presented for various circuit-breaker panelboards. Price listing is also included for each unit. Bul 500 is issued by Continental Electric Equipment Co., Dept. CP, Box 1055, Cincinnati 1, Ohio. When inquiring specify CP 3389 on handy form, pages 2 and 3.

Takes 5 minutes to convert heater to cool air circulator

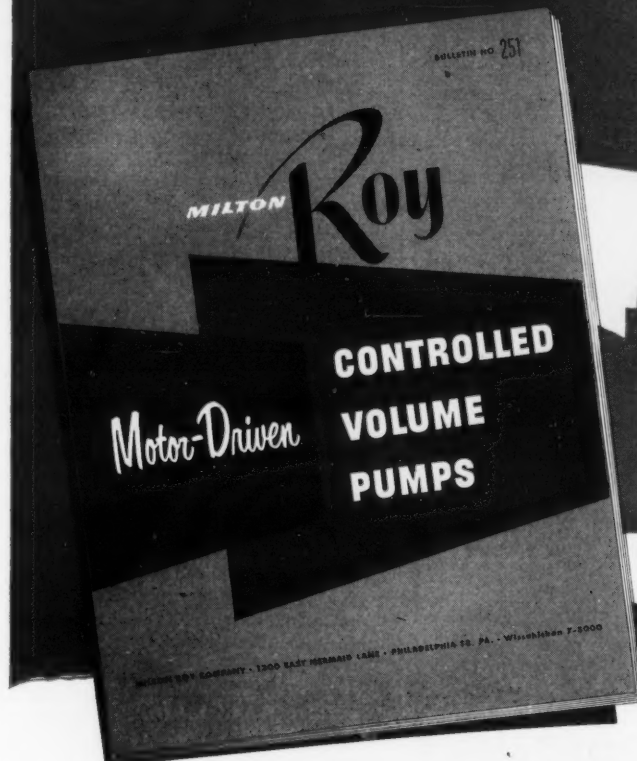
Six-page bulletin highlights air cooling feature of heat machines. Portable heat machine is capable of supplying 189,000 Btu through zone six feet high. Unit may be converted in five minutes to cool air circulator which delivers 1500 cfm of air. Heat machine may be operated as vented or unvented unit, according to installation requirements. Equipment can be used to dry or cure paint, plaster, concrete, fabrics, corn, hay, beans, etc.

Bul L-5391 is issued by Fageol Heat Machine Co., Dept. CP, 5725 Mt. Elliott Ave., Detroit 11, Mich. When inquiring specify CP 3390 on handy form, pages 2 & 3.

JUNE, 1952

Motor-Driven

CONTROLLED VOLUME PUMPS



Complete
Information
In These
Pages

What are Milton Roy Motor-Driven Controlled Volume Pumps? What materials do they pump? How and where are they used? What different designs and models are available?

The answers to these questions and many more can be found in Bulletin No. 251. This illustrated, 24-page, 2-color bulletin is full of important details. Here is a preview of some of the subjects which are discussed:

- a description of various Milton Roy Motor-Driven Controlled Volume Pumps—the Simplex, Duplex, Constametric, "Titronic," and "miniPump."

- an explanation of the exclusive Milton Roy Liquid End Step-Valve design. This information is useful because it describes the "how" and "why" of this unique non-clogging, self-cleaning liquid end.

- a description of pump capacity regulation by *plunger stroke* adjustment, including screw adjustment, micro adjustment, motorized micro adjustment.

- details on pump capacity regulation by *plunger speed* adjustment, including speedranger adjustment, "Thymotrol" adjustment, Link Belt P.I.V. adjustment.

- data on where Milton Roy Motor-Driven Controlled Volume Pumps can be used.

- capacity-pressure selection tables are included.

If your operations call for pumping liquids in accurately measured volume in amounts as low as 3 milliliters per hour or as high as 50 gallons per minute, we're sure Bulletin No. 251 will be of value to you. For your free copy, write the Milton Roy representative listed in your local classified telephone directory. Or, write directly to us.

Manufacturing
Engineers



MILTON

Roy

COMPANY

1354 EAST MERMAID LANE, PHILADELPHIA 18, PA.

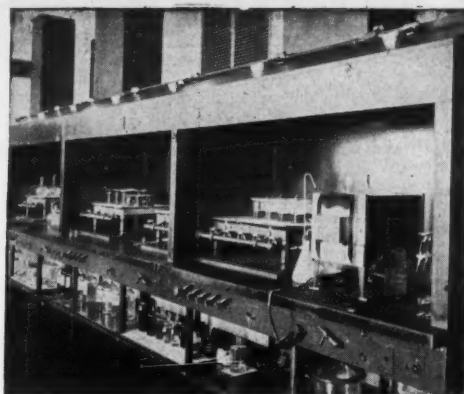
CONTROLLED VOLUME PUMPS AND AUTOMATIC CHEMICAL FEED SYSTEMS

When inquiring check CP 3391 on handy form, pgs. 2-3

make Perchloric Acid handling safer!

Precautions that must be taken in handling perchloric acid make special hoods a necessity. Now Alberene Stone offers you fume hoods *specially designed* to reduce hazards in working with perchloric acid . . . *specially designed* to give you greater safety. For prompt advice on any of your fume problems write Alberene Stone Corporation of Virginia, 419 4th Ave., N. Y. 16, N. Y., or visit our nearest branch office.

When inquiring check CP 3392 on handy form, pgs. 2-3



International Nickel Company, Inc.,
Research Laboratory, Bayonne, New Jersey

FREE REPRINTS

of an article
giving helpful hints
on safe handling
of perchloric acid
are yours for the
asking. Just write
today on your
company letterhead.

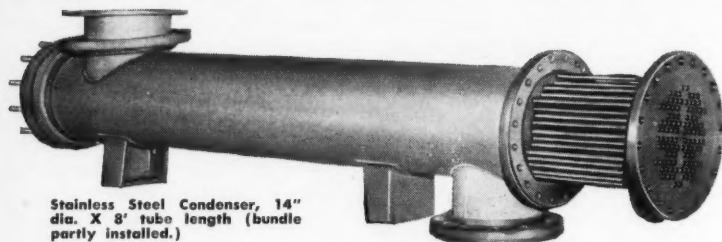


ALBERENE STONE

Branches in Principal Cities



We are specialists in HEAT TRANSFER EQUIPMENT



Stainless Steel Condenser, 14"
dia. X 8' tube length (bundle
partly installed.)

DOWNTOWN solicits your inquiry for Heat Transfer Equipment fabricated of Aluminum, Inconel, Nickel, Phosphor and Aluminum Bronze, Copper, Stainless, Monel, Silicon Bronze and various grades of Carbon Steel.

Design and construction will meet requirements of A. S. M. E. Code or other agency specified by customer. Equipment of our design is sold on a guaranteed performance basis or we will fabricate to customer's drawings. Modern facilities available for radiographing, stress relieving and heat treating, where required. Remember: "Your Needs Are Our Specialty!"

DOWNTOWN is experienced in building equipment with Bi-metallic, Finned Tube and Karbate Graphite.

Write on your letterhead for DOWNTOWN literature on shell and tube heat exchangers.



NEW YORK OFFICE, 30 CHURCH STREET

When inquiring check CP 3393 on handy form, pgs. 2-3

NEW LITERATURE

Hand lever portions out oil to burner

Two-page catalog describes oil valves for regulating flow of any grade of oil. Valves are intended for large capacities and feature hand lever control of oil flow. Hand indicator has full travel of 180°. Valve capacity is directly proportional to pointer dial position, under constant pressure drop conditions. Sectional illustrations of valve are presented, and various dimensions are specified. Valve pipe sizes are 1/2, 3/4, and 1". Suitable for manual or automatic control.

Valve capacities are presented for flow of No. 2 oil. According to catalog, indicator dial eliminates guesswork and promotes efficient oil supply to burners. Cat 719 is issued by Hauck Manufacturing Co., Dept. CP, 124-136 Tenth St., Brooklyn 15, N. Y. When inquiring specify CP 3394 on handy form, pages 2 and 3.

Words and pictures tell story of roof maintenance

Sixteen-page booklet takes step by step tour of roof repair and maintenance. Pictures and descriptive material cover patching holes and breaks, repair of flashings, and how to locate concealed leaks, shrinkage, rust, rot, etc. Manual discusses preparatory maintenance steps and continues thru to final application of roofing materials. Booklet is intended as a guide to prolonging roof life, and is applicable to every type of industrial roof.

Booklet "Saving Old Roofs" is issued on letterhead request to the Tropical Paint & Oil Company, Dept. CP, 1210-52 W. 70th St., Cleveland 2, Ohio.

Technical data cover 13 metal stannates

Sheet No. 203 gives theoretical composition of 13 metallic stannates. Information includes hydrated formulas, content is based on theoretical per cent.

Technical data sheet No. 204 presents individual properties of 13 stannates. Dielectric constants are presented: for power factors of 1 kc and 1 mc. Data on ceramic properties are tabulated as to maturing temperatures in F and C, per cent shrinkage, and per cent absorption.

Tech Data Sheets No. 203 and No. 204 are issued by Metal & Thermit Corporation, Dept. CP, 100 E. 42nd St., New York 17, N. Y. When inquiring specify CP 3395 on handy form, pages 2 and 3.

"HEARD ABOUT NEW *Speedline* CORROSION- RESISTANT FITTINGS?"

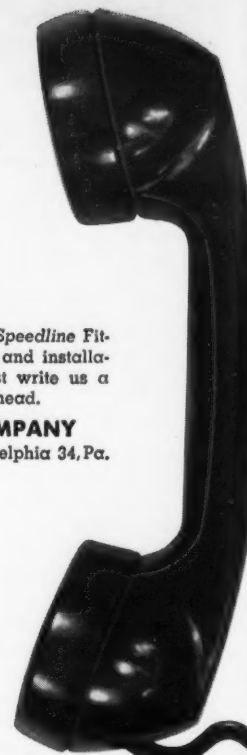
FREE CATALOG shows how *Speedline* Fittings can reduce your piping and installation costs. For your copy, just write us a note on your company letterhead.

HORACE T. POTTS COMPANY
Erie Avenue & D Street, Philadelphia 34, Pa.

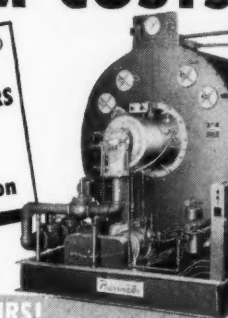
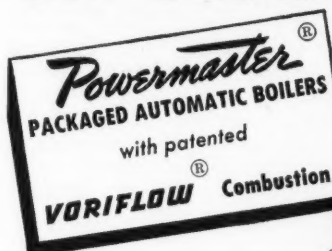
"YOU BET! THEY GIVE YOU A QUICK HOOK-UP OF TUBE SIZES AND PIPE SCHEDULES 5, 10 AND 40."

Speedline Corrosion-Resistant FITTINGS
give you a better job, at less cost

When inquiring check CP 3396 on handy form, pgs. 2-3



CUT STEAM COSTS



SAVE FUEL and MAN-HOURS!

Thousands of Powermaster users are now getting top efficiency and low-cost steam or hot water for processing and heat after replacing out-of-date boilers with this modern, fully automatic, "packaged" steam generator.

- High efficiency cuts operating costs as much as 40%
- Packaged design saves excessive installation costs
- Automatic operation frees engineer for other duties
- Mounted on steel base—no bricking required
- Delivered fully wired and factory-tested
- Prompt service by factory-trained men

15 to 500 HP—FOR HOT WATER AND FOR STEAM UP TO 250 P.S.I.—for light oil, heavy oil, gas and combination gas/oil firing. Built to A.S.M.E. specifications and approved by Underwriters' Laboratories.

FREE CATALOG MAILED PROMPTLY

ORR & SEMBOWER, INC.
960 Morgantown Rd. Reading, Pa.

When inquiring check CP 3397 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Drum type separators handle magnetic recovery problems

Eight-page bulletin describes magnetic separators for wet concentrations and magnetic recovery. Drum type separators are constructed of non-magnetic materials and are water tight. Electro-magnets are located within the drum and extend only part way around it. Stationary magnets can be adjusted to meet particular needs. Electrical wiring to magnets passes through hollow shaft on which the drum rotates. This eliminates slip rings and contact brushes. Drum rotation is independent of magnetic pull.

High intensity magnetic field is generally required for production of very low grade tailing. On the other hand, it is difficult to produce high grade concentrate with such a field, since middlings may be attracted to magnets. Separators meet this problem with minimum and maximum operating strengths. Photographs of six separator models are offered in bulletin. One high intensity unit is intended to produce tailings of low magnetic iron content; and another separator is designed for wet concentrations of fine magnetic material.

Typical operating results are tabulated according to per cent magnetic iron in tailings and recovery of magnetic media. Bul 846 is issued by The Jeffrey Manufacturing Company, Dept. CP, 956 N. 4th St., Columbus 16, Ohio. When inquiring specify CP 3398 on handy form, pages 2 and 3.

Publication points up qualities of scientific executive

Four-page bulletin discusses personal characteristics which make competent scientific executives, particularly directors of research and development. Background, experience, and personal traits are three important qualities in research director. Bulletin emphasizes research director's sensitivity to public relations which begin in personnel relations in laboratory. Ability to visualize, to verbalize, and to estimate an overall problem are said to be indispensable to director in his project of integration.

Publication contains another article which expresses view that specification of raw materials in generic and qualitative terms is a nearsighted policy. According to article, this designation adds fuel to current agitation for further cosmetic legislation. Bul 14 is issued by Di Cyan & Brown, Dept. CP, 12 E. 41st St., New York 17, N. Y. When inquiring specify CP 3399 on handy form, pages 2 and 3.

Describe variety of floor matting in rubber, wood, plastic, etc

Wide variety of floor matting in such materials as rubber, wood, plastic, composition is described in two illustrated folders.

A few of the advantages listed for the matting are: 1) prevents accidents by insuring a slip-proof footing, 2) minimizes breakage, 3) cuts cleaning costs, 4) promotes sanitation by keeping out germ-laden filth, 5) silences footsteps, 6) reduces redecorating costs, 7) increases efficiency and retards fatigue by providing comfort underfoot, 8) modernizes and beautifies floors.

"Eleven Ways to Increase Your Business" gives a detailed description and types recommended for various applications, while "How to Buy Floor Matting" is designed to aid in selection of all types of floor matting in plants. Both are issued upon letterhead request to D. W. Moor Company, Dept. CP, 1798 Adams St., Toledo 2, Ohio.

STOP VALVE CORROSION IN YOUR PIPELINES!

LUNKENHEIMER "Causul" Metal Valves Resist Acids and Corrosive Fluids

The following are typical of the many acids and corrosive fluids "Causul" Metal Valves handle without corrosion in the valves:

Acetic Anhydride (Pure)

Acetone
Alcohol
Alkalis
Aluminum Sulfate
Ammonia Liquor
Ammonium Sulfide
Ammonium Hydrate
Ammonia-Gaseous
Ammonia-Aqueous
Aniline
Amyl Acetate
Benzene
Benzol (Containing Sulfur)
Black Liquor
Brines—Acid
Brines—Neutral
Brines—Alkaline
Calcium Chloride (Acid)
Calcium Chloride (Alkaline)
Calcium Hydroxide
Carbolic Acid
Caustic Soda—25% 150°F.
Caustic Soda—50% 150°F.
Caustic Soda—50% 220°F.
Carbon Bisulfide
Carbon Tetrachloride (Plus .5% H Cl)
Chrome Alum
Creosote
Crude Oil
Cyanides
Dye—Black Sulfur
Dye—other (except Chromes)
Edible Oils
Ethyl Acetate
Ethyl Chloride
Fatty Acids (Acidulated)
Fruit Juices
Fuel Oil
Garbage Liquor
Gasoline (Sour)
Glycerine
Hydrogen Peroxide (U.S.P.)
Hydrogen Sulfide
Lime
Mayonnaise
Mercerizing Solutions
Natural Gas (Corrosive)
Oleic Acid

Oxalic Acid

Paper Pulp Mill Liquors
(Soda and Sulfate or Kraft Processes)
Black Liquor
Green Liquor
White Liquor
Phosphoric Acid (Pure)
Potash Alum
Potassium Hydroxide
Pyroligneous Acid
Pickling Acid—complete information required
Producer Gas (corrosive)
Rayon Solutions (except those containing copper salts and acetic acid)
Rosin Oil
Salt (sodium chloride)
Salt Brines
Salty Crude Oils
Sewage
Sludge Acid (Petroleum and Coke By-product)
Soda Ash
Sodium Aluminate
Sodium Bicarbonate
Sodium Carbonate
Sodium Hydroxide
Sodium Silicate
Sodium Sulfide
Sodium Sulfite (neutral or alkaline)
Sour Mash (Distilleries)
Sulfur Chloride
Sulfuric Acid—5% 80°F.
Sulfuric Acid—10% 80°F.
Sulfuric Acid—25% 80°F.
Sulfuric Acid—30% 80°F.
Sulfuric Acid—78% 80°F.
Sulfuric Acid—25% 80°F.
Sulfuric Acid—3% 150°F.
Sulfuric Acid—10% 150°F.
Sulfuric Acid—25% 150°F.
Sulfuric Acid—50% 150°F.
Sulfuric Acid—78% 150°F.
Sulfuric Acid—95% 150°F.
Tankage (highly acid)
Trichlorethylene (solvent)
Turpentine
Turpentine Oil
Water-Alkaline Tap Waters
Zeolite, Permutit, Sodium Aluminate treated waters

*Reg. T/M of The L Co.

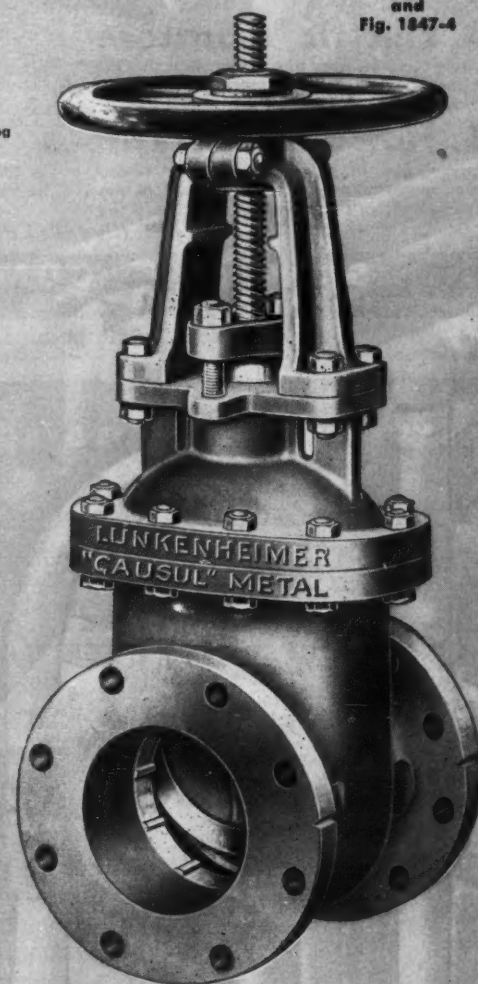
WRITE FOR Circular 592 which explains "Causul" Metal Valve properties, trims, and typical applications. A confidential information blank is included with the Circular. Just fill it out, return it, and our engineers will recommend the correct "Causul" Metal Valve for any specific service you name. Write The Lunkenheimer Co., Box 360C, Cincinnati 14, Ohio.

IRON • BRONZE • STEEL

LUNKENHEIMER

THE ONE *Great* NAME IN VALVES

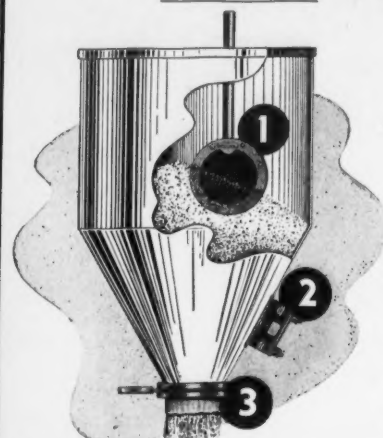
Fig. 1639-8
and
Fig. 1847-4



When inquiring check CP 3400 on handy form, pgs. 2-3

for Complete Hopper Efficiency

SYNTRON



1. Hopper Level Switches

Eliminate spillage and shortage of materials. Automatically maintain desired levels of materials — from fine to coarse — in bins and hoppers. Control feeding.

2. Electric Vibrators

Assure free-flowing bins, hoppers and chutes. Eliminate arching and plugging of materials without hammering and rodding that damages equipment and wastes manpower.

3. Flow Control Valves

Control flow of bulk materials from bins, hoppers and chutes. Rotating control lever increases or decreases opening of flexible iris type diaphragm and flow of material without jamming or clogging.

Write For FREE Illustrated Folders

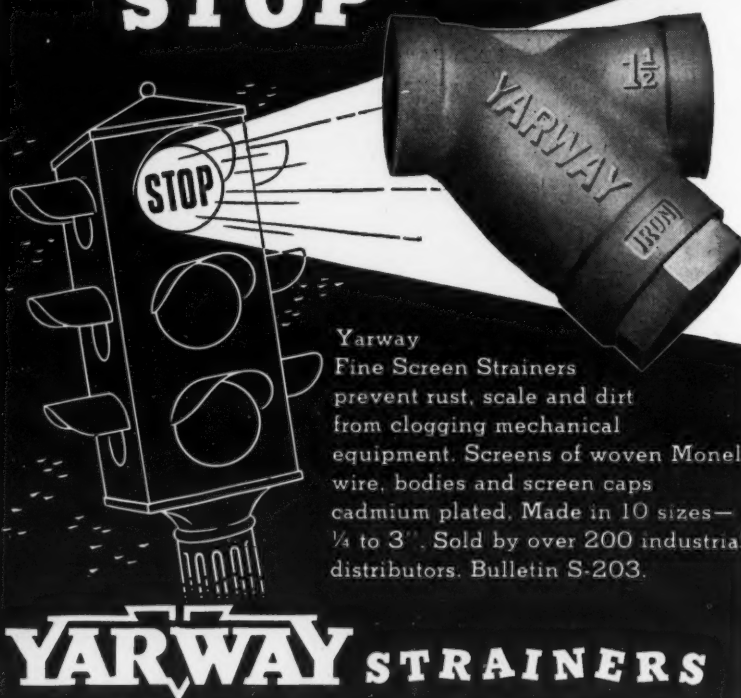
SYNTRON COMPANY

110 Lexington Avenue

Homer City, Penna.

When inquiring check CP 3401 on handy form, pgs. 2-3

SAYS **STOP** TO SOLIDS



Yarway Fine Screen Strainers prevent rust, scale and dirt from clogging mechanical equipment. Screens of woven Monel wire, bodies and screen caps cadmium plated. Made in 10 sizes — 1/4 to 3". Sold by over 200 industrial distributors. Bulletin S-203.

YARWAY STRAINERS

YARNALL-WARING CO., 125 Mermaid Ave., Philadelphia 18, Pa.

When inquiring check CP 3402 on handy form, pgs. 2-3

NEW LITERATURE

Tabulates specifications of control thermometer

Four-page specification sheet offers tabular material and illustrations to cover control thermometers. Units are furnished as eccentric scale indicators or one or two-pen record control thermometers. Thermal ranges are tabulated for vapor, gas, and mercury according to minimum temp, maximum temp and minimum span in degrees F. Discussion also covers instrument assemblies, control forms, and pressure ranges.

Spec Sheet 609 is issued by Brown Instruments Division, Minneapolis-Honeywell Regulator Company, Dept. CP, Wayne and Windrim Aves., Philadelphia 44, Pa. When inquiring specify CP 3403 on handy form, pages 2 and 3.

Charts fatty acids and their derivatives

Seventeen-by-eleven-inch chart provides empirical formulas, molecular weights, and acid numbers of 23 fatty acids in common use. Boiling and melting points in Centigrade are also specified for many of these fatty acids.

Chart includes composition and important physical properties of the 46 most widely used processing oils and fats.

Chart is printed in two colors and shows such data as an oil's iodine number, saponification value, per cent of unsaponifiables, and normal fatty acid composition. Chart is issued by Technical Products Division, E. F. Drew & Co., Inc., Dept. CP, 15 E. 26th St., New York, N. Y. When inquiring specify CP 3404 on handy form, page 2 and 3.

Gives test results for concrete hardener

Performance data are outlined in four-page review of concrete hardener. Information is assembled according to testing problem, procedure followed, results obtained, and significance of these results. Testing data are based on comparison of specimens treated with hardener and concrete slabs which have not been treated.

Introductory paragraphs tell how hardener works, what it does, and what it will not do. Tests apply to properties such as surface abrasion resistance, sub-surface penetration, wetting ability, and hardness. Material is said to increase resistance of concrete floors to acids, alkalis, and oils. Material contains chemically active

ROTARY ROOF COOLER

"Makes the roof perspire for you"



Economical rotary roof cooler constantly evaporates, renews thin film of water on roof

Simple . . . inexpensive . . . easy to install . . . requires no piercing of roof, no electricity . . . effective with or without air conditioning

Write for 6-page Bulletin

RUPPRIGHT'S ROTARY ROOF COOLER

Box 6795-CP

Los Angeles 22

When inquiring check CP 3405 on handy form, pgs. 2-3

Only **Koncentrik** STAINLESS STEEL FITTINGS

STOP DANGEROUS LEAKS

...with Patented Floating Seat

- 1 Double sealing, self-centering seat is Teflon reinforced to eliminate line losses.
- 2 Heavy duty, fatigue-proof constructed for high pressure use.
- 3 Easy to install. No special tools needed.
- 4 Economical . . . because parts are interchangeable and reusable.
- 5 Complete line for tubes to 1" O.D., and for Schedule 5 S and 10 S tubing to 3/4". Other sizes to order.



THE SPECIAL SCREW PRODUCTS CO.

5445 Dunham Rd., Bedford, Ohio

SEND FOR PROOF

Descriptive literature and performance data available upon request. Write today.

When inquiring check CP 3406 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

agent which reacts with lime and calcium carbonate in concrete. Wear-resistant substance is deposited among surface pores and sub-surface pores.

According to report, concrete is rendered less absorbent to liquids, and more resistant to effects of freezing and thawing.

Form 3-B-1 is issued by L. Sonneborn Sons, Inc., Dept. CP, 80 Eighth Ave., New York 11, N. Y. When inquiring specify CP 3407 on handy form, pages 2 and 3.

List highlights of diaphragm valve

Four-page bulletin describes double seated diaphragm regulating valve for use with control instruments. Chief feature is "flow line contoured body," which is said to provide high capacity flow at low pressure drop. Another highlight of valve is that seat rings can be replaced without removing valve body from pipeline.

Sectional view is presented for valve and several parts. Face-to-face dimensions and pressure drop data are included in tabular form. Descriptive material also mentions stellited seating surfaces, self-aligning guides, and compact superstructure. Bul 513 is issued by Leslie Co., Dept. CP, 308 Delafield Ave., Lyndhurst, N. J. When inquiring specify CP 3408 on handy form, pages 2 and 3.

Guide to coatings for military items

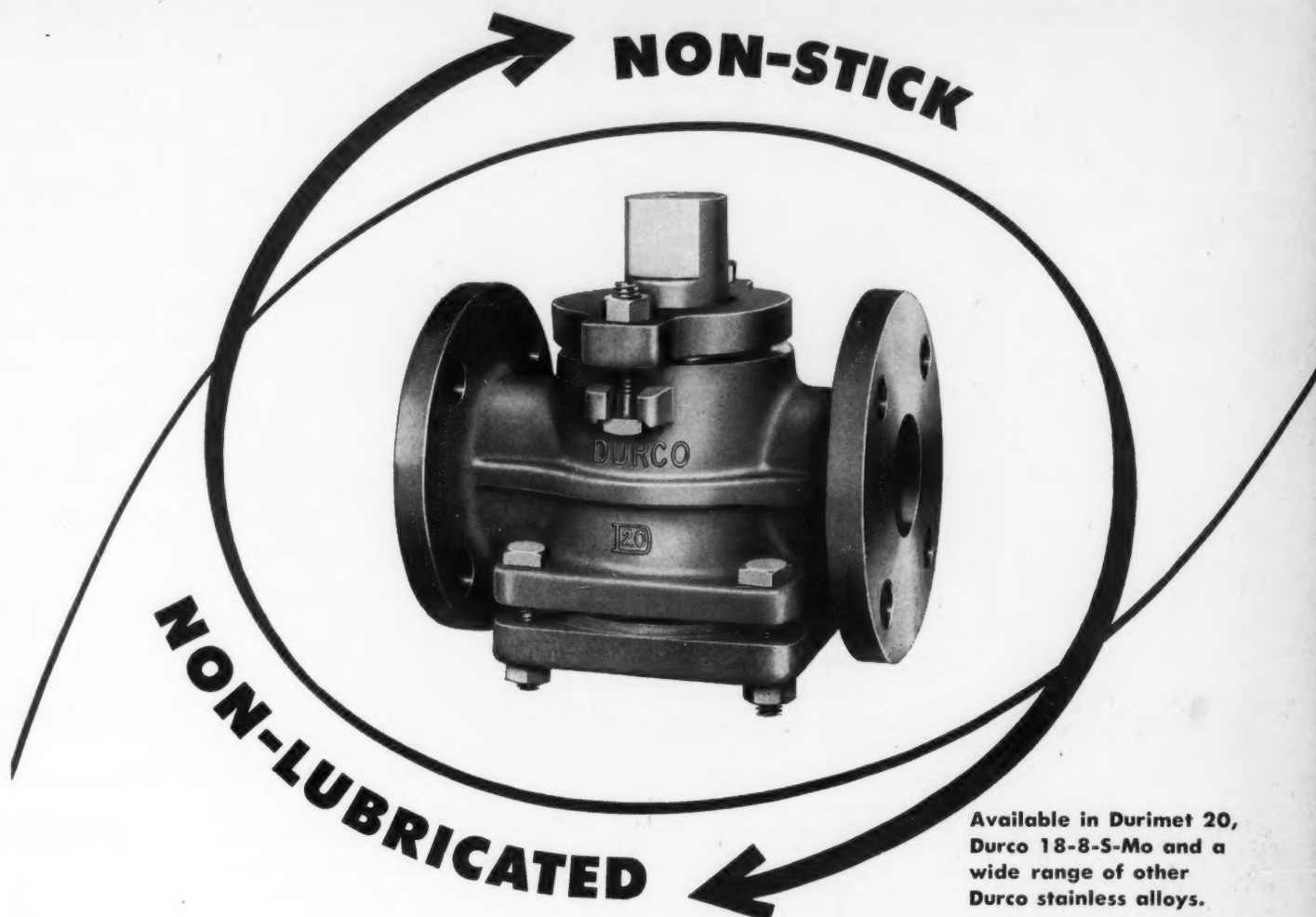
Eight-page folder constitutes guide to specification lacquers for finishing military items. First section of leaflet enables suppliers of finishes to find out what kind of lacquer finishing material is being called for when all they have is a specification number.

In second section of leaflet, the permissible or appropriate specification numbers are grouped according to use.

Specification numbers are included for finishing such items as vehicles, dopes, fuel tanks, sealing compounds, furniture, and containers or housings for electrical equipment, cannisters, adhesives, etc.

"Specification Lacquers" is issued by Hercules Powder Company, Dept. CP, Ninth and Market St., Wilmington 9, Del. When inquiring specify CP 3409 on handy form, pages 2 and 3.

For more information on product at right, specify CP 3410. . . . see information request blank between pages 2-3.



Available in Durimet 20, Durco 18-8-S-Mo and a wide range of other Durco stainless alloys.

DURCO TYPE F VALVE

When you buy a valve, you're mainly interested in trouble-free performance. This valve gives it to you—in the toughest kinds of chemical service. There are thousands in use. Yet, no case of sticking has ever been reported, despite the fact that no lubricant is used.

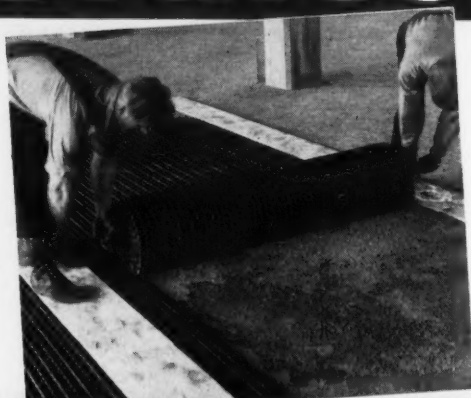
The reason is the Teflon sleeve—and the basic design that makes it practical to use. Sizes $\frac{1}{4}$ " through 2". Other details in Bulletin 647.



A product of
THE DURIRON COMPANY, Inc.
Dayton, Ohio

4 "Grates"

For
Executives
and Engineers
Responsible for
Engineered
Plant Services



KLEMP Metal Gratings

- Protect against floor wastes
- Reinforce all concrete surfaces
- Insure fireproof, non-slip footing for men and traffic
- Insure efficiency with safety
- Insure protection, plus comfort through complete ventilation

The Klemm Metal Grating Corporation has been serving the needs of those men responsible for the safety of plant employees and the maintenance of all types of flooring for almost half a century. This includes stairways, stair treads, runways, catwalks and tower stairs in industries where there are flooring problems, such as chemical and gas plants, power stations, oil refineries, or where there are turbine rooms and pump rooms. During this time, Klemm has produced and patented several specialized gratings including Hexteel and Floorsteel.

Klemm's engineers have exclusively specialized in the fabrication of gratings such as Hexteel Surface Armor and Floorsteel Flexible Floor Armor for reinforcement of all surfaces where concrete or mastic are applied.

Klemm's diamond riveted and welded gratings are ideal for foot and plant material traffic wherever rugged strength is needed in structural footwalks, stair treads and open steel flooring.

We solicit the opportunity to let Klemm's engineers help solve your most difficult grating problems. Send in your blueprints for quotations today. All types of Klemm Gratings are available for immediate shipment.



We Tread the World with Safety

KLEMP METAL GRATING CORPORATION

When inquiring check CP 3411 on handy form, pgs. 2-3

NEW LITERATURE

Display steam traps for service at vacuum to 300 psi

Five thermostatic steam trap models are described and illustrated in 12-page bulletin. Traps range in size from 1/4 to 2" and may be used in pressures from vacuum to 300 psi. Bellows are constructed of bronze, monel, or stainless steel. Bodies are of bronze, semisteel, and cast steel.

One of several features listed for traps is that they may be used as air vents since they discharge air as efficiently as water. Traps are said to be freeze-proof, will not dribble, and provide intermittent discharge of condensate.

Highlight of bulletin is self cleaning strainer which may be installed in supply line to traps, valves, pumps, etc. Strainers are intended to prevent dirt, pipe scale, and other foreign substances from entering apparatus. Schematic illustrations and specifications are included with each trap. Typical applications are presented in diagram form, and a comparative chart shows actual size valve orifices used on average traps. Bul 152 is issued by W. H. Nicholson & Company, Dept. CP, 12 Oregon St., Wilkes Barre, Pa. When inquiring specify CP 3412 on handy form, pages 2 and 3.

Mercury lamp transformers for indoor and outdoor lighting

Sixteen-page description covers indoor and outdoor type transformers for operation of H-1 400 w mercury lamps. Wiring diagrams show connections for single lamp and two lamp transformers for inside use. Similar illustrations are provided for multiple circuit and series circuit transformers for outdoor use. Units are furnished in both normal power factor and high power factor types. Conduit suspension, messenger wire suspension, and wall mounting methods are shown for indoor transformers.

All two-lamp transformers are of high power factor design. Units are equipped with 1/2 and 3/4" knockouts, and have color coded, tagged leads. With use of two-lamp transformers, failure of one lamp does not affect operation or brilliance of other lamp. Three primary voltage taps are provided to closely match circuit voltage in order to insure full lamp brilliancy and long life. Transformers are equipped with leads for operation of incandescent lamps in combination incandescent-mercury vapor fixtures.

Bul 521-5 is issued by Jefferson Electric Company, Dept. CP, Bellwood, Ill. When inquiring specify 3413 on handy form, pages 2 and 3.

FREE Guide Tells How to Remove Scale and Rust



Yours for the asking — this 28-page booklet explains how to remove lime scale and rust — without dismantling — from such equipment as:

Heat Exchangers
Condensers • Compressors
Transformers • Filters
Hydraulic Dynamometers

Get this FREE Booklet on Oakite Compound No. 32 — scientifically designed scale-and-rust-dissolver. Write, today, to Oakite Products, Inc., 18F Rector Street, New York 6, N.Y.

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS • METHODS • SERVICE

Technical Service Representatives in Principal Cities of U. S. & Canada

When inquiring check CP 3414 on handy form, pgs. 2-3

the last word in feeders . . .

— for dry materials . . . sea coal, trap rock, Vinylite, hydrated lime, zinc hydrosulphate, activated carbon — and liquids . . . acids, chemical solutions, and suspensions. For Bulletins and complete information, address Omega Machine Company (Division of Builders Iron Foundry), Providence 1, R. I.

omega machine co.

When inquiring check CP 3415 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

Helps select right meter for more than 100 industrial liquids

Twenty-page bulletin describes liquid meters for measuring more than 100 industrial liquids in processing, batch mixing, and cost control operations. Featured in two-color bulletin are several pages of meter selector charts. They provide engineering and specification data to assist in selecting the meter best suited for specific applications. More than 30 different meters are included. All are positive displacement type which register in weight or volume.

Liquids that can be handled by these meters include cold, warm and hot water, syrups, oils, soap solutions, brines, and many common chemicals. Capacities of meters range from 2 to 1000 gpm, with temperatures up to 250°F, and pressures to 5000 psi. Photographs view the different models and units which are in actual operation. Bul 566-7 is issued by Neptune Meter Company, Dept. CP, 50 W. 50th St., New York 20, N. Y. When inquiring specify CP 3416 on handy form, pages 2 and 3.

Future of Synthetic Fibers

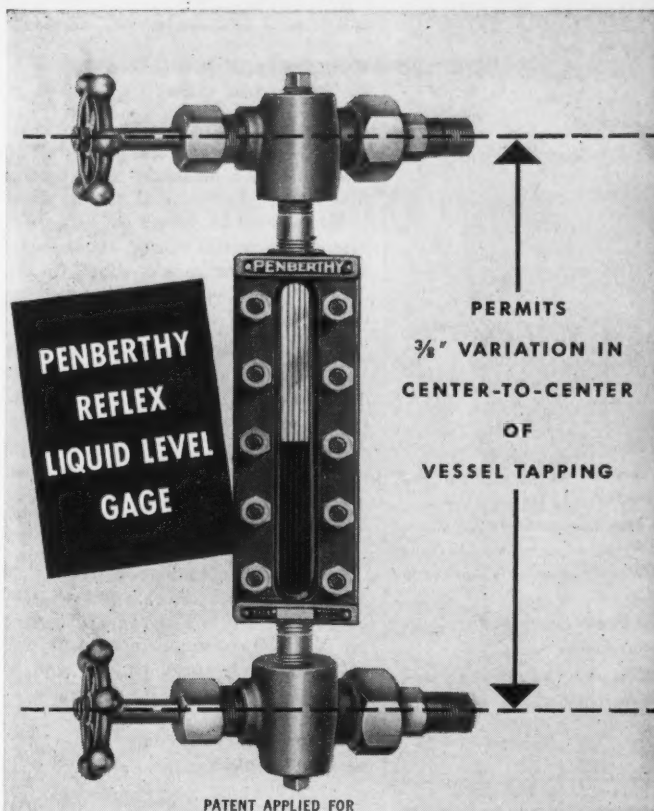
(Continued from page 4)

monia has increased 14 times in the past 20 years. Present capacity production of synthetic ammonia is close to two million tons per year. Projects under construction provide for 16 new or expanded plants, and will add 750,000 tons to this capacity by the end of next year. However, agriculture consumes two-thirds of available nitrogen supplies and will continue to dominate the picture.

The present decade is destined to be one in which synthetic fibers will play the outstanding role; and the availability of the chemicals I have mentioned will directly affect their future production. At the present time, the synthetic fiber industry exceeds all other branches of the chemical industry in rapidity of growth and possibilities for the future. It is noteworthy that the advent of rayon did not result in any marked displacement of other fibers in the textile industry, but rather encouraged their use. Increased consumption of synthetic fibers has resulted in a corresponding increase in consumption of natural fibers. The products complement each other.

So intense has been the public's interest in these synthetic fibers that many, such as du Pont's Orlon and Dacron, Union Carbide's Dynel, and Chemstrand's Acrilan, have become household words before they appeared on the market in any substantial quantities. Although produced by different companies and by different processes, these new fibers share certain properties in common. They have excellent warmth and warm-to-the-touch factors, and should find widespread application in the apparel field. They are not attacked by moths, mold, mildew, or insects, which is of great consumer interest. These fibers do not absorb moisture to any appreciable extent, and hence garments fabricated from them can be given semi-permanent heat set creases. They have low specific gravities, which results in bulk without weight for excellent covering power.

Synthetic fibers are required in ever increasing quantities to clothe the people in the world. This increased production must come from the synthetic fiber industry, as the quantity of land available for natural fiber production is steadily declining. Consumer demands such as these are considered by many to indicate that we are approaching what has been designated as the chemical age.



Another PENBERTHY First

OTHER PENBERTHY PRODUCTS

PENBERTHY TRANSPARENT GAGE

Used to observe color and density of liquids under high pressures and/or temperatures. Exceptionally sturdy construction—liquid chamber machined from solid block of metal. Ask for Catalog 35.

PENBERTHY CYCLING JET PUMPS

Automatically operated by air, gas or steam pressure . . . Will pump without clogging any liquid that will flow through pipes. Ask for Bulletin 5030.

PENBERTHY EJECTORS

A simple jet pump operated by air, water or steam. Needs no lubrication . . . will not get out of order. Made in wide variety of materials and special units developed to meet unusual conditions. Ask for Bulletin 512.



PENBERTHY INJECTOR COMPANY

DIVISION OF THE BUFFALO-ECLIPSE CORPORATION

DETROIT 2, MICHIGAN

Established 1886

Canadian Plant, Windsor, Ontario

When inquiring check CP 3417 on handy form, pgs. 2-3

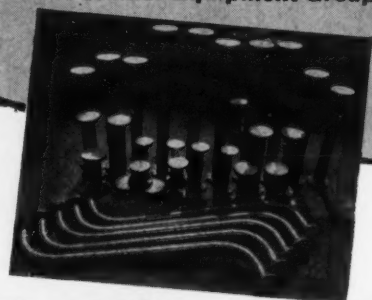
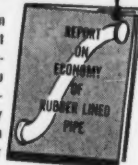
Pipe Cost — \$1,360 Plus Installation Savings — Every Year — \$8,000 In Similar Equipment Groups

Some of the Ways
we are
helping others

Made furnish rolls for printing textiles, developed non-toxic white rubber linings for food processing equipment, constructed special rolls for the new non-contact printing process, devised static absorbing rolls, and provided many other specials for troubled production executives

Send for This Report

Details a case history on rubber lined pipe that applies to corrosion protection in any field. You will find it a thought-provoking text that may reveal ways you can use the services of our RUBBER ENGINEERS.



Amazing, yes—and 3½ years use has demonstrated that this saving is no temporary affair.

Many case histories have proven the merit of the La Favorite method of lining and/or covering pipe, valves, tanks and special equipment with exclusive La Favorite rubber compounds.

They have confirmed the value of this method of protection against corrosion and other destructive forces.

They show that it has SAVED countless thousands of dollars for users—and that is what counts!!!

LA FAVORITE RUBBER MFG. CO.

267 Wagaraw Road

Paterson, N. J.

1019

RUBBER LININGS

RUBBER COVERING

RUBBER ENGINEERING

When inquiring check CP 3418 on handy form, pgs. 2-3

NEW LITERATURE

Properties of Insulators for electronic tubes

Four-page bulletin tabulates physical, electrical, and mechanical properties of electronic tube insulators and spacers. Material used is natural steatite fired in hydrogen atmosphere to insure degassing properties during tube evacuation. Two-color booklet shows variety of insulators, which are designed to meet industrial specifications.

Insulators withstand temperatures to 1450°C, and porous structure of material contributes to high surface resistance. Several grades of insulators are available, but only three are included in bulletin. Insulators are offered with dielectric strengths of 100 and 120 volts per mil. Loss factors are .0026, .0032, and .011 per 1000 kc.

"Insulators for Electronic Tubes" is issued by M. Kirchberger & Co., Inc., Dept. CP, 1425 37th St., Brooklyn, N. Y. When inquiring specify CP 3420 on handy form, pages 2 and 3.

Emphasizes features of plastic pipe

Four-page catalog highlights corrosion-resistant and lightweight properties of plastic pipe for petroleum industry. Cellulose-acetate-butyrate plastic pipe is extruded in rigid form. At 77°F, plastic has compressive strength, at yield, of 4500 psi, and tensile strength of 3700 psi. Recommended operating pressure is 100 psi.

Weight comparison in pounds is drawn between plastic pipe and ordinary steel pipe. Piping has found application in syphon tubes from receiving tanks and in ground lead lines. According to bulletin, smooth inner wall increases rate of flow at given pressure drop, does not attract sludge, and reduces settling.

Cat 352 is issued by Johnson Plastic Corporation, Dept. CP, Brown Rd., Chagrin Falls, Ohio. When inquiring specify CP 3421 on handy form, pages 2 and 3.

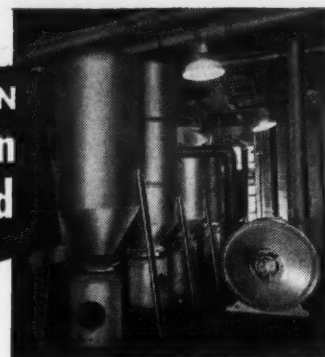
Pre-plasticizing units and their benefits

Sixteen-page bulletin describes pre-plasticizing units commonly used with thermoplastics, particularly polystyrene and cellulosic materials. Schematic drawings illustrate function of pre-plasticizing chamber. Photographs show injection molding machines in actual operation.

It is stated that an important advantage of pre-plasticizing is increase in plasticizing capacity of given size ma-

SPENCER VACUUM

IN American Cyanamid Plants



Ten years ago American Cyanamid Company installed a Spencer stationary vacuum cleaning unit to remove excess dusts resulting from the manufacture of plastic powders. Today Spencer stationary units with a total of 135 horsepower are used almost continuously to remove excess powder from floors, machines, walls and pipes. The material is collected by the barrel and sold for fertilizer. Spencer portables are used all over this plant in locations not reached by the stationary vacuum lines.

Spencer Vacuum has more than 100 uses in industry. It reclaims metals, conveys materials, cleans machinery, and goods in process. It handles hot materials, liquids, sand, rice, injurious dusts and gases and invariably pays for itself in a few months. Ask for Bulletin No. 144.

THE SPENCER TURBINE COMPANY • HARTFORD 6, CONNECTICUT

SPENCER

439-F

When inquiring check CP 3422 on handy form, pgs. 2-3

M & L "Standardized Flexibility" Saves You DOLLARS and DRUDGERY!

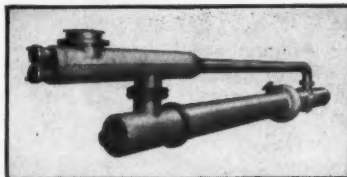
Thousands of HEAT EXCHANGE Equipment installations have proven the wisdom of M & L "Standardized Flexibility"—providing custom-built equipment from standard basic elements—saving dollars in cost and drudgery for design engineers.

To make this method economical to users a great deal of experience and know-how is required. We have this in quantity, and many internationally known concerns in the chemical processing and allied fields, are reaping the benefits.

RETUBING and REPAIR SERVICE

Single pass or multi-pass: straight, U-tube, or bent tube; baffled or non-baffled; fixed tube sheets or floating head—for any type of service. Our plant is equipped to handle this work quickly and economically.

Send for Bulletin 790



M & L REBOILER — An example of special M & L heat exchange equipment.

Manning & Lewis Engineering Co.

30 Ogden Street

Newark 4, New Jersey

SALES REPRESENTATIVES IN PRINCIPAL CITIES



When inquiring check CP 3419 on handy form, pgs. 2-3

TELEVISION-

Custom-built "Folded-and-Formed" Heating Element Racks used in 180 ft. long Television Tube Annealing Oven. Continuous operation under critical temperature control.

CHEMICAL PROCESSING •

Preparing to install custom-built "Folded-and-Formed" Heating Element Racks in one-half of Split Jacket for 19 ft. Vertical Tower used in special chemical processing at 1200°F.

Write for Bulletin 81-T

More BIG Jobs ...for TRENT "Folded-and-Formed" Heating Elements



"Folded-and-Formed" Heating Elements are also available in Standard Racks, 12" x 12", for easy installation in your own equipment. 5-Year Guarantee.

TRENT INC

Electrically Heated Industrial Equipment
235 LEVERINGTON AVE. PHILA 27, PA.

When inquiring check CP 3423 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

chine. Bulletin cites example of 16 oz capacity machine which had rate of 75 lb per hr; and this rate was increased to 150 lb per hr when pre-plasticizing conversion unit was used.

According to report, lower molding temperatures eliminate chances of burning material. With pre-plasticizing machine, polystyrene is never molded above its burning point. Other benefits are said to include increased shot capacity, less distortion, better color dispersion, and faster cycle time.

Bul 5206 is issued by The Hydraulic Press Manufacturing Company, Dept. CP, Mount Gilead, Ohio. When inquiring specify CP 3424 on handy form, pages 2 and 3.

Special function gages and valves for heated or cooled flow

Four-page bulletin includes sectional and photographic views of heated and cooled gages and valves. Units are built to meet conditions which require heating or cooling of liquid to speed flow or control boiling tendencies. Gages may be obtained with external tube or with internal tube. Pressure ranges are tabulated for two model gages. Discussion also covers design, pipe connections, sizes, and dimensions of gages. Similar discussion is applied to two valve models.

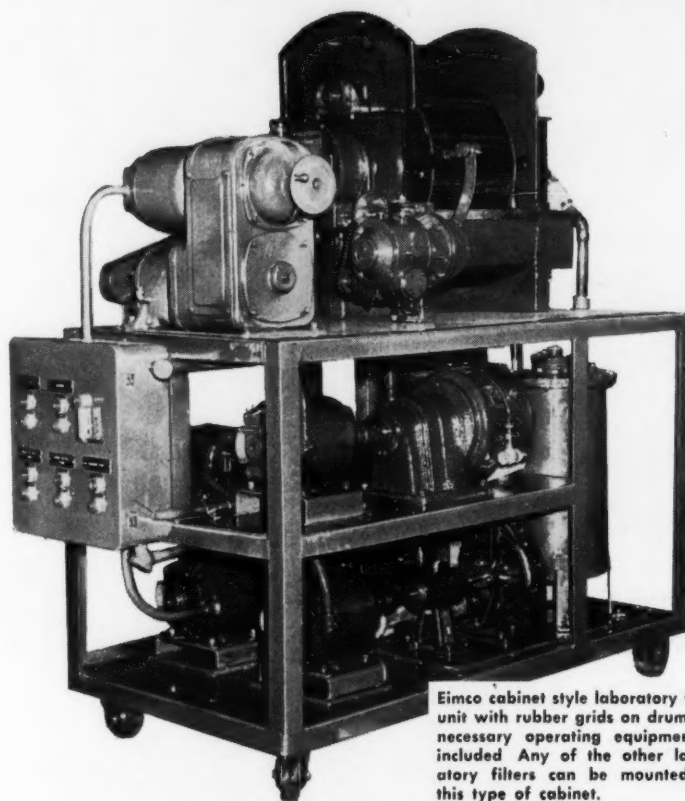
Bul 179 is issued by Jerguson Gage & Valve Co., Dept. CP, 80 Fellsway, Somerville 45, Mass. When inquiring specify CP 3425 on handy form, pages 2 and 3.

Potentiometer measures spans as narrow as 100 microvolts

Four-page data sheet describes narrow span potentiometer circuit which measures low level potentials. Description covers characteristics, uses, operation, and design features of instrument. Self-contained instrument is capable of measuring spans as narrow as 100 microvolts. Interior view shows amplifier and measuring circuit resistor assembly. Specifications are also included for recorders, indicators, and function plotter. Data Sheet 10.0-8 is issued by Brown Instruments Division, Minneapolis-Honeywell Regulator Company, Dept. CP, Wayne & Windrim Aves., Philadelphia 44, Pa. When inquiring specify CP 3426 on handy form, pages 2 and 3.

For more information on product at right, specify CP 3427
... see information request
blank between pages 2-3.

Reliable Filter Data In Your Own Laboratory with EIMCO C.F.P. Units



Eimco cabinet style laboratory filter unit with rubber grids on drum. All necessary operating equipment is included. Any of the other laboratory filters can be mounted on this type of cabinet.

An Eimco Laboratory Filter is a complete filter plant (C.F.P.) in itself. Shipped from the factory with all necessary equipment ready to go to work for you in your laboratory.

EIMCO C.F.P. Units are proportional in design and construction. Data obtained on these units may be used to plan production plants.

C.F.P. Units are available in disc or drum design with any of the numerous attachments that are available on EIMCO production size filters.

Laboratory Continuous Vacuum Filters are all equipped with EIMCO automatic valves and are heavy-duty units with equipment arranged to form a compact unit for easy moving around the laboratory or plant.

Write for more information.

EIMCO

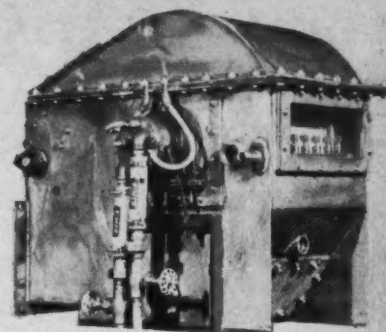
THE EIMCO CORPORATION

The World's Largest Manufacturers of Underground Rock Loading Machines
EXECUTIVE OFFICES AND FACTORIES - SALT LAKE CITY 10, UTAH, U. S. A.

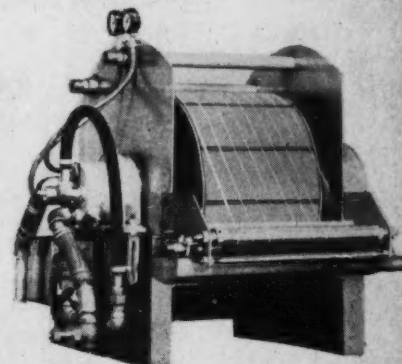
BRANCH SALES AND SERVICE OFFICES:

NEW YORK: 51-57 SOUTH STREET • CHICAGO: 3319 SOUTH WALLACE STREET
BIRMINGHAM, ALA.: 3140 FAYETTE AVE. • DULUTH, MINN.: 216 E. SUPERIOR ST.
EL PASO, TEXAS: MILLS BUILDING • BERKELEY, CALIF.: 637 CEDAR STREET
KELLOGG, IDAHO: 307 DIVISION ST. • LONDON W. 1, ENGLAND: 190 PICCADILLY

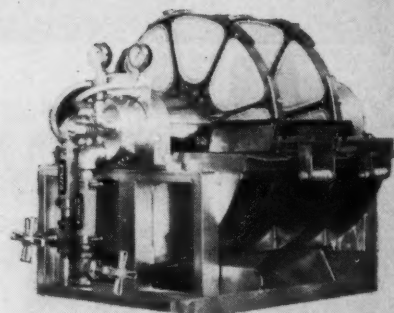
IN FRANCE: SOCIETE EIMCO, PARIS, FRANCE
IN ENGLAND: EIMCO (GREAT BRITAIN) LTD., LEEDS 12, ENGLAND
AGENTS IN ALL PRINCIPAL CITIES THROUGHOUT THE WORLD



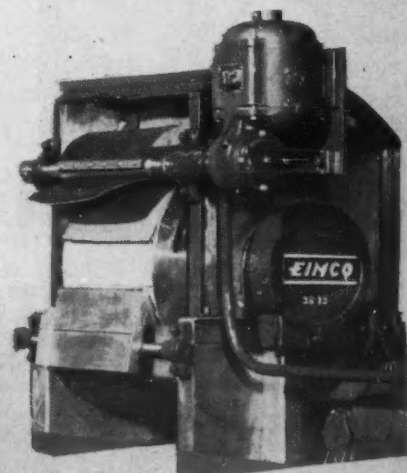
Eimco Laboratory size Precoat Filter for pressure operation.



Eimco Drum type Laboratory Filter with String Discharge Attachment and Wash Frame.



Two Disc Eimco Laboratory Unit. Also available with Single Disc.

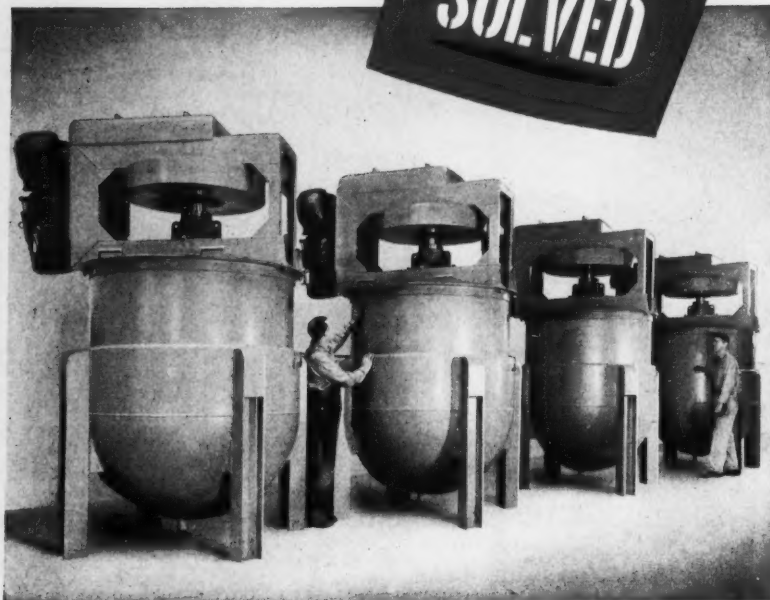


Flapper and Drag Sheet attachment on Eimco Drum Type Laboratory Filter.

another tough one . . .



**BRIGHTON
SOLVED**



crossed in our lap . . . a production mixing problem from one of the country's leading paint producers.

Brighton engineering and design built into this battery of 500 gal. capacity, steel, steam jacketed (100 lbs. pressure) kettles, solved their problems and achieved these benefits: Higher Production — Production Economy

- Mixing and Blending Accuracy
- Product Improvement.



Special Brighton feature is the Double Motion Agitator with Scrapers. The agitator with scrapers revolves in opposite direction to the turbo agitator, thus keeping kettle walls clean permitting maximum heat transfer through kettle walls at all times, as well as keeping contents in constant motion.

Products receive additional agitation by the turbo agitator revolving in the opposite direction.

Hundreds of producers in the Paint, Chemical, and Process Industries are using Brighton engineering facilities to solve special problems . . . are depending on Brighton for efficient low cost longer service.

Write today.



BRIGHTON copper works inc.

820 state ave. • cincinnati 4 • ohio

DIVISIONS: F. C. DECKBACH SONS CO., HAMILTON COPPER & BRASS WORKS, BUCYRUS KETTLE WORKS
est. 1914 • engineers • metalsmiths • machinists • designers, producers of chemical processing equipment

When inquiring check CP 3428 on handy form, pgs. 2-3

NEW LITERATURE

Reports variety of services in electrical maintenance

Complete servicing of electrical apparatus is described in 24-page booklet. Maintenance program is based on use of genuine renewal parts, repair service plants, and engineering and field service. Several photographs show testing devices and repair equipment which are available at various repair plants. Descriptive material also covers motor exchange service, periodic inspection service, and "on the spot" repair jobs.

Booklet B-4766 is issued by Westinghouse Electric Corporation, Dept. CP, Box 2099, Pittsburgh 30, Pa. When inquiring specify 3429 on handy form, pages 2 and 3.

Wide selection of safety devices for boilers

Twenty-four page catalog presents a comprehensive selection of safety devices for steam and hot water boilers and heaters. The book is organized to display the various products according to function: water feeders, low water fuel cut-offs, float operated switches, temperature and pressure relief valves, float valves, and related products. Included are many specialized variations. Capacity curves, dimension drawings, and engineering information are provided to guide proper selection.

Bulletin No. SC-2 is issued by McDonnell & Miller, Inc., Dept. CP, 3500 N. Spaulding Ave., Chicago 18, Ill. When inquiring specify CP 3430 on handy form, pages 2 and 3.

Compares phys prop's of 18 plasticizers

Nine-page bulletin presents the specifications, structural formulas, physical properties, and recommended uses for 18 of manufacturer's plasticizers. Included are dimethyl sebacate, butyl benzyl sebacate, dioctyl phthalate, dicapryl phthalate, and dihexyl adipate. Compatibility is indicated with: vinyl resins, polyvinyl chloride and copolymers, natural and synthetic rubbers, cellulose nitrate, polystyrene, etc.

Among physical properties compared in a table are: color, odor, boiling point, flash point, weight per gallon, refractive index, and saponification number. In addition to the plasticizers, specification data are given on butyl stearate, sebacic acid, and capryl alcohol. "Harflex Plasticizers" is issued by Hardesty Chemical Co., Inc., Dept. CP, 41 East 42nd St., New York 17, N. Y. When inquiring specify CP 3431 on handy form, pages 2 and 3.

2-SHAFT MIXER FAMOUS FOR SUPREME EFFICIENCY

GROEN

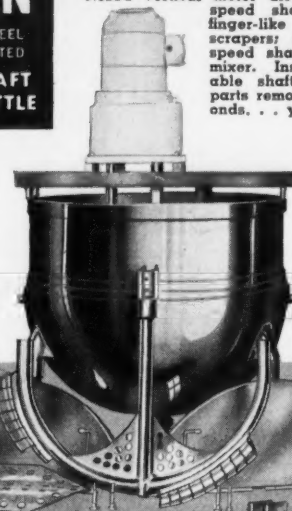
STAINLESS STEEL
STEAM JACKETED

**TWIN-SHAFT
MIXER KETTLE**

**ROTA-THERM
HIGH SPEED
JACKET
AVAILABLE**

All stainless steel advantages PLUS fastest cooking ever known. Write for Bulletin RT-1.

MODEL TA. . . noted industry-wide for heavy duty, double action 2-shaft performance. Meets strictest SANITARY codes. Enclosed vertical motor drives: (1) a slow speed shaft with flexible finger-like contour-fitting scrapers; and (2) a high speed shaft using selected mixer. Instantly demountable shafts make agitator parts removable in few seconds. . . yet can't separate in operation. A great mixer! Ask for Bulletin TAK-2.



CUT SHOWS
AGITATOR
ASSEMBLY
REMOVED

GROEN MFG. CO. 4531 W. Armitage Ave. Chicago 39, Ill.

30 Church St., New York 7; 7 Front St., San Francisco 11

half a century of fine kettles

When inquiring check CP 3432 on handy form, pgs. 2-3

PLATECOILS

(REPLACE PIPE COILS)

save 5 ways



used as original equipment

in DAUER Bonderite Washers

1. Lower first cost
2. Simplified and less costly installation
3. Take less space in tank
4. Higher heat transfer rate
5. No pipe joints in solution

Send for complete technical manual and descriptive Bulletin No. P54.

PLATECOIL

KOLD-HOLD MFG. CO.
LANSING 4, MICHIGAN

When inquiring check CP 3433 on handy form, pgs. 2-3

CHEMICAL PROCESSING JOURNAL

Convention & Exhibit Schedule 1952

- June 23-25. Manufacturing Chemists Association, Greenbrier Hotel, White Sulphur Springs, W. Va.
- June 23-25. Synthetic Organic Chemical Manufacturers Association, Greenbrier Hotel, White Sulphur Springs, W. Va.
- Aug. 12-14. 4th Western Packaging and Materials Handling Exposition, Shrine Convention Hall, Los Angeles, California.
- Sept. 8-12. Instrument Society of America, National Instrument Conference and Exhibit, Cleveland, Ohio.
- Sept. 9-13. American Chemical Society, Chicago Section, Seventh National Chemical Exposition, Chicago Coliseum, Chicago, Ill.
- Sept. 11-13. American Institute of Chemical Engineers, Palmer House, Chicago, Ill.
- Oct. 14-16. The Society of Industrial Packaging and Materials Handling Engineers, 7th Annual Exposition, Chicago Coliseum, Chicago, Ill.
- Oct. 20-21. National Association of Suggestion Systems, 10th Annual Convention, Drake Hotel, Chicago, Ill.
- Nov. 17-19. National Paint, Varnish and Lacquer Association, Annual Convention, Palmer House, Chicago, Illinois.
- Nov. 20-22. Federation of Paint and Varnish Production Clubs, Annual Meeting, Palmer House, Chicago, Ill.
- Nov. 25. Manufacturing Chemists' Association, Inc., Second Semi-Annual Meeting and Winter Conference.
- Dec. 7-10. American Institute of Chemical Engineers, Annual Meeting, Hotel Cleveland (headquarters) and Carter Hotel, Cleveland, O.

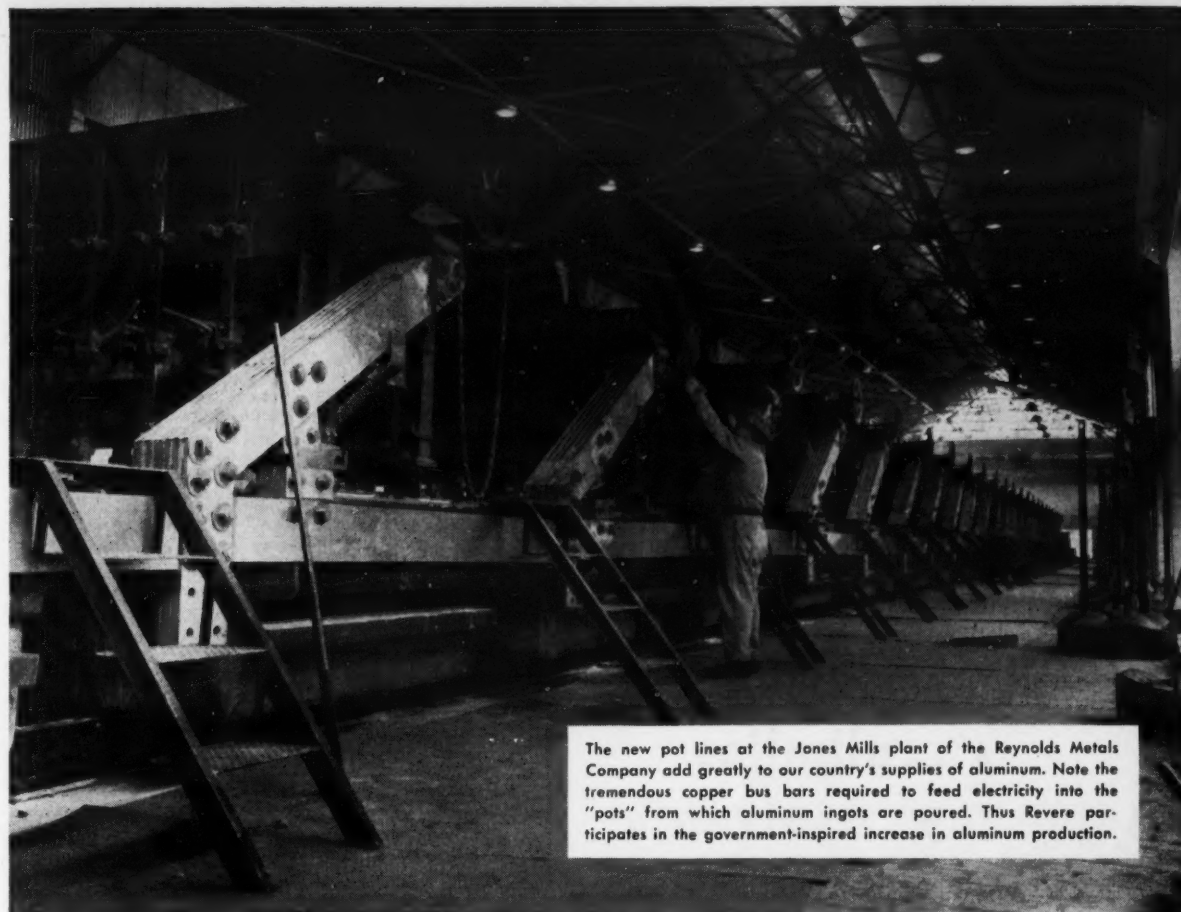
1953

- March 8-11. American Institute of Chemical Engineers, Buena Vista Hotel, Biloxi, Miss.
- April 26-29. American Institute of Chemical Engineers, Royal York Hotel, Toronto, Canada (Joint Meeting with the Chemical Institute of Canada.)
- Sept. 13-16. American Institute of Chemical Engineers, Fairmont and Mark Hopkins Hotels, San Francisco, Calif.
- Dec. 13-16. American Institute of Chemical Engineers, Annual Meeting, Hotel Jefferson, St. Louis, Mo.

Offer specs and maintenance tips on tires for industry

Two-color catalog describes rubber tires for use on material handling vehicles. All types of cushion and solid rubber industrial tires are reviewed. Special purpose compounds are available to meet requirements of high temperature or release of static charges. Separate sections of 32-page catalog offer maintenance tips on tire care and methods of gaining "more ton-miles per tire."

Various tire models are illustrated and appropriate sizes and specifications are included. Large portion of catalog is devoted to equipment manufacturers' specifications. This section lists equipment according to manufacturer, vehicle model number, type and size of tire recommended. Twelve companies are included in this section which is intended to simplify ordering of replacement tires. "Handbook of Industrial Tires" is issued by The Monarch Rubber Company, Dept. CP, Hartville, Ohio. When inquiring specify CP 3434 on handy form, pages 2 and 3.



The new pot lines at the Jones Mills plant of the Reynolds Metals Company add greatly to our country's supplies of aluminum. Note the tremendous copper bus bars required to feed electricity into the "pots" from which aluminum ingots are poured. Thus Revere participates in the government-inspired increase in aluminum production.

It takes a lot of **REVERE COPPER BUS BAR** to increase aluminum production

● The Government has directed Revere to produce millions of pounds of copper bus bar for the new aluminum plants being put into operation in order to increase the output of this light metal that is so essential to defense. Copper is the ideal metal to carry the heavy currents required for the "pots" that produce aluminum from the ore. Thus aluminum and copper are intimately linked together. Aluminum is used in planes, ships, weapons, missiles, ammunition, and in many other defense applications. Copper, best of all the commercial metals in electrical conductivity, likewise has many vital tasks to perform for our armed forces, afloat, ashore, and in the air. Revere is glad that its large capacity for the production of bus bar is so valuable in these times; in our long history of over 150 years of service we have always given every-

thing possible in times of our country's need. However, we are regretful that today's government requirements materially limit our ability to fill civilian orders. We look ahead, eagerly and hopefully, to the time when the present urgent demands are met to such an extent that orders for bus bar and other Revere products can be filled more promptly.

REVERE

COPPER AND BRASS INCORPORATED

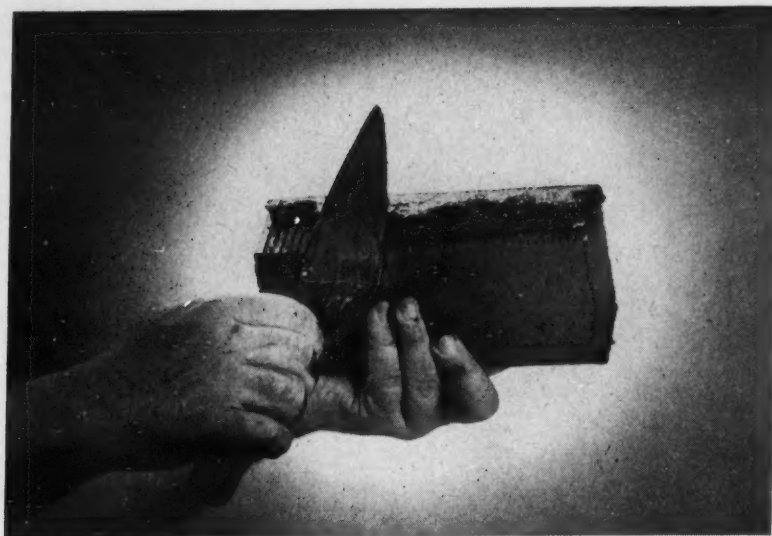
Founded by Paul Revere in 1801

230 Park Avenue, New York 17, New York

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.; Sales Offices in Principal Cities, Distributors Everywhere.

SEE "MEET THE PRESS" ON NBC TELEVISION EVERY SUNDAY

When inquiring check CP 3435 on handy form, pgs. 2-3



THIS ONE CEMENT

- ✓ ..resists acids
- ✓ ..alkalies
- ✓ ..solvents

ALKOR 5E is the nearest approach to a universal corrosion-proof cement. It is the particular combination of resistance characteristics that makes ALKOR 5E of tremendous importance to industry.

It is important for you to know that your acid-proof construction will not be destroyed by alkalies or solvents in any phase of your processing operations. It is also important that you can standardize on this one cement, proven to withstand and protect against such a wide range of corrosives.



ALKOR 5E is a resin cement based on a furfuryl alcohol polymer. In addition to resistance to all non-oxidizing acids, alkalies and solvents; it also resists fats, oils and greases; and may be used for temperatures up to 380° F. ALKOR 5E has no offensive odor; and its low shrinkage assures joints that are level with the brick or tile surface.

NEW Bulletin 5-2... send for your copy today.

RECOMMENDATIONS for your specific requirements may be obtained without obligation from the ATLAS Technical Service. In recommending both materials and constructions for handling corrosives, there is no substitute for 60 years of ATLAS experience.

ATLAS PRODUCTS STAND
...between your process
and corrosion



Corrosion-proof: Cements—Coatings—Vessel Linings

When inquiring check CP 3436 on handy form, pgs. 2-3

Discussed in This Issue ---

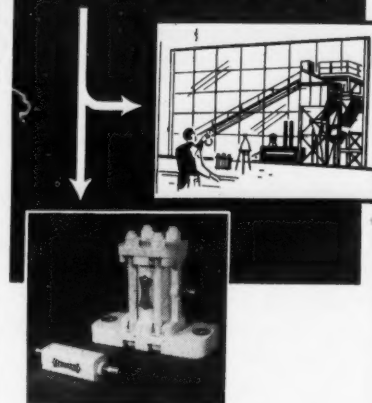
PROCESSES, EQUIPMENT and MATERIALS



Use this "quick-locator" when you want information on a specific type of process, equipment or material mentioned in the processing stories or the advertisements in this magazine. Everything discussed in this issue is given here, if you want more data you can write manufacturer direct... or turn to pgs. 2-3 and use the handy "Information Request Slip." This is a special service provided by the publisher... no obligation or charge, of course. The publisher contacts the proper manufacturers for you—information comes to you direct.

A		Calcium Ricinoleate	34
		Calculators, Laboratory	100
		Cameras, X-ray Diffraction	109
		Capryl Alcohol	194
		Carbohydrates, Reagents for	113
		Carbonate of Potash	21
		Carbon Black	28, 31
		Carbon Distillation	182
		Casters	187
		Carton Lifters	58
		Catalysts	29
		Catalysts, Polymerization	154
		Catechol	30
		Cautic Potash	21
		Cements, Corrosion-resistant	206
		Centrifugals 63, 116, 125, 133, 183	
		Centrifuges	119
		Ceramics	72
		Chemical Kinetics	27
		Chemicals	23
		Chemicals, Organic Chlorine	33
		Chemicals, Inorganic & Organic	
		Chlorine, Liquid	21
		Chlorine Compounds, Organic	
		Chromic Acid Recovery	18
		Classifiers Particle	113
		Cleaners, Jet	178
		Cleaners, Metal	176
		Cleaners, Tube	98, 148
		Cleaners, Vacuum	202
		Closure, Sting	15
		Clothing, Protective	128, 129
		Cloth, Wire	209
		Coatings, Cool Roof	167
		Coatings, Corrosion-resistant	156
		Coatings, Heat-resistant	152
		Coatings, Latex	44
		Coatings, Protective	22, 35,
		44, 106, 168, 169	
		Coatings for Concrete	38, 198
		Coatings for Foam Rubber	36
		Coatings for Plastics	155
		Colloids	22
		Color	195
		Colorimeters	99, 106
		Combustion Chambers	172
		Compartmentizers, Box Car	53
		Computers	78, 154
		Concrete Hardener	38, 198
		Condensers	72
		Containers, Metal	59
		Controllers, Combustion	86, 182
		Controllers, Flow	83
		Controllers, Gas	93
		Controllers, Liquid Level	92, 183
		Controllers, Pneumatic	16
		Controllers, Ratio	81
		Controllers, Temperature	
		104 109, 193, 198	
		Controllers, Vibration	54
		Controllers, Viscosity	80
		Controllers, Weight	56
		Controls, Liquid Level	82
		Conveying Systems, Pneumatic	
		Conveyors	46
		Conveyors, Belt	48, 52, 53
		Conveyors, Cable	35
		Conveyors, Gravity	48
		Conveyors, Pneumatic	50, 58, 192
		Conveyors, Portable	50, 55
		Conveyors, Power	54
		Conveyors, Roller	58, 185
		Conveyors, Screw	48
		Conveyors, Vibratory	55, 57, 129
		Cookers, Pressure	117
		Coolants, Roof	167
		Coolers	195
		Coolers, Pyrex	3
		Coolers, Roof	198
		Cooling Towers	121
		Cabinets, Desiccating	97
B		Bag Closures	142
		Bags, Multiwall 140, 143, 146, 147	
		Bags, Paper	144
		Bags, Waterproof Paper	141
		Balances, Torsion	98
		Bandages	66
		Barrels	142
		Batteries, Storage	153
		Bearings, Oilless	210
		Belts, Conveyor	35
		Belts, Link	165
		Belts, Metal Conveyor	209
		Benzoic Acid	33
		Benzyl Chloride	33
		Bins, Concrete	52
		Blades, Abrasive	118
		Blenders, Twin-shell	121
		Blowers	116, 156
		Boiler Safety Devices	204
		Boiler Linings	189
		Boilers	196
		Bolts, Eye	169
		Bottles, Polyethylene	147
		Boxes, Corrugated	145
		Brass	193
		Brazing Alloys	166
		N-Bromomethylphthalimide	111
		Bubble Caps	210
		Buckets, Elevator	56
		Bus Bars	205
C			

Ever try
Air Vibration
to move
"Stuck" materials?



Dry chemical materials handled in bins, hoppers, chutes, storage tanks, screens, etc., will get stubborn sooner or later.

Chemical people are using the CLEVELAND Air-Cushioned Type Air Vibrator to keep them moving, either continuously or on an intermittent basis.

Simple to install. Low initial cost. Quiet operation.

Backed by 27 years experience. A complete range of piston diameter sizes and mountings is available.

THE CLEVELAND VIBRATOR COMPANY

2706 Clinton Ave. • Cleveland 13, Ohio

☐ Send your Catalog 108 and Hopper Data Sheet.

Name _____

Company _____

Street _____

City _____

State _____



2706 Clinton Ave. • Cleveland 13, Ohio

When inquiring check CP 3437 on handy form, pgs. 2-3

CHEMICAL PROCESSING JU

Counters, Radiation	135
Couplings, Flexible	178
Creams, Hand	128
Cutters, Rubber	213
Cylinders, Stainless	10

D

Defoamers	33
Defoamers, for Emulsion Paints	30
Dehumidifiers	100, 120
Demineralization	10
Demineralizers, Monobed	117
Demineralizers, Portable	40
Desiccants, Packaging	37
Detectors, Leak	143
Detectors, Mercury Vapor	137
Detergents	27, 42
Detergents, Non-ionic	43
N,N Diallylmelamine	44
Diamines	41
Diffusers	114
Dispersers	70, 122
Dispersing Agents	38
Dispersions, Sodium	118, 192
Dissolvers	182
Distillation, Carbon	32
Driers, Calcium	30
Driers, Coating	209
Drives, Enclosed Gear	211
Drives, Variable Speed	4, 10, 97, 195, 65
Dryers, Rotary	107
Dryers, Spray	164
Duct, Plastic	48
Dumpers	123, 150, 175
Dust Collectors	32
Dyestuffs, Textile	

E

Ejectors	201
Ejectors, Steam-jet	61, 164
Electrical Maintenance	204
Emulsifiers	33
Enamel Bases	31
Entrainment Separators	214
Ethanolamines	35
N, Ethyl-maleimide	23
Exhaust Systems	184
Expanders, Tube	148

F

Fabrication, Stainless	154
Fabrication, Wire	209
Face Shields	131
Fans, Exhaust	66, 158, 159
Fasteners, Aluminum	158
Fastenings, Corrosion-resistant	194
Fatty Acids	41, 198
Feeders	200
Feeders, Bulk Materials	48
Feeders, Chemical	112
Feeders, Gravimetric	122
Feeders, Vibratory	175
Ferric Chloride	21
Fiberglass Fabric, Silicone-coated	36
Filling Machines	140, 142
Filter Aids	75
Filter Cloths	158
Filter Cloths, Dynel	102
Filter Cloths, Metal	172
Filter Fabrics	14
Filter Presses	166
Filters	121, 135, 139
Filters, Centrifugal	123
Filters, Dust	114, 185
Filters, Horizontal	64, 65
Filters, Horizontal Plate	119
Filters, Liquid & Gas	191
Filters, Pilot	64, 65
Filters, Vacuum	203
Filters, Ventilating	192
Fire Extinguishers	136
Fire-fighting Systems	129
Fire Protection	128
Fittings, Cast iron	120
Fittings, Corrosion-resistant	196
Fittings, Stainless	198, 207
Fittings, Tank	212
Fittings, Threadless	167
Fittings, Welding	104

Flame Failure Safeguards	83
Flasks, Titration	103
Flocculating Agents	6
Floor Machines	148
Floor Maintenance	177
Floor Matting	197
Floor Patch & Resurfacer	72
Floors, Concrete	152
Fume Problems	196
Furnace Black, High Abrasion	28
Furnace Blacks	31
Furnaces, Electric	99, 101

G

Gages	203
Gages, Liquid Level	201
Gages, Pressure	92
Gages, Sight	81
Gages, Tank	38
Gas Analysis Systems	130
Gases, Rare	22
Gaskets	155
Gaskets, Plastic	170
Gaskets, Teflon	74, 165
Gas Masks	134
Gearmotors	159
Generators	156
Generators, Infrared	181
Generators, Steam	162, 191
Glass Tubing, Grip for	101
Gloves, Industrial	126, 130, 132
Gloves, Shoulder-length	132
Glues	185
Glycerine	37
Goggles	133
Greases, Lithium	191
Gratings, Metal	200
Grating non-skid	130
Grinders, Impact	150
Grinding Liquid	43

H

Hammers, Hammermill	16
Handling of Molding Powders	46
Heaters	195
Heaters, Acid-proof	108
Heaters, Air	164
Heaters, Rubber Mat	174
Heaters, Storage	189
Heat Exchangers	60, 68, 72, 105, 196, 202, 204
Heating, Dielectric & Induction	67
Heating Equipment, Electric	150
Heating Systems for Pipelines	8
Homogenizers	115
Hooks, Packing Removal	192
Hose	54
Hose, Flexible Metal	149, 153, 157
Hose Ends	54
Humidity Conditioning	142, 161

I

Idlers, Belt Conveyor	59, 182
Indicators, Bin Level	102
Indicators, Gas	95
Indicators, Smoke	15
Industrial Hygiene Fellowships	70
Insecticides	150
Instruments	89, 193
Instruments, Computer	154
Insulating Techniques	60
Insulators, Electrical	202
Intercom Systems	170
Intermediates	34
Ion Exchange in Plating	18
Ion Exchange Membrane	10
Ion Exchangers	110
Isonicotinic Acid	30
Isotope Distribution	189

K

Kegs	142
Kettles	182



announcing
an **economical**
stainless steel fitting
for joining pipe or tube
without threading or welding

Quikupl®

Designed to reduce assembly costs and to permit the use of less expensive lighter wall tubing. **Quikupl** stainless steel elbows, tees, couplings, reducers and adapters save you time, labor, materials and money.

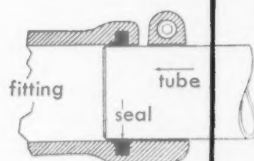
Quikupl means lower installation costs! No threading, welding, flaring or other skilled assembly operations. Just cut to length and deburr.

Quikupl means lower material costs! Thin walled tubing can be used to maximum advantage.

Quikupl means economical maintenance! Downtime is cut to a minimum. Assembly and disassembly become a matter of minutes.

Quikupl means safe, leakproof connections! Synthetic sealing rings provide positive pressure-tight joints at all times.

Quikupl means simplified fitting inventories! Use it with schedules 5, 10, 40 and 80 pipe sizes without changing from one fitting to another . . . use it with a variety of tube wall thicknesses as long as the O.D. remains the same.



TO GET THE FACTS

about this amazing
new line of stain-
less steel fittings,
write today for
Bulletin Q100



THE COOPER ALLOY
FOUNDRY CO. • HILLSIDE, N. J.

LEADING PRODUCER OF STAINLESS STEEL VALVES, FITTINGS & CASTINGS

When inquiring check CP 3438 on handy form, pgs. 2-3



Every Man, Woman and Child in the U.S.A. Can Go Riding at the Same Time

In the U.S.A., competition is basically responsible for better cars at lower comparative cost. We enjoy the use of three times as many cars—and annually produce four times as many cars—as the rest of the world put together. There are approximately 43 million autos—and 9 million trucks and buses—in use in the U. S. A. today. That's more than enough to take everyone riding at the same time.

By stimulating the sale of the new and the resale of the old, our competitive system achieves widespread ownership of automobiles, as with almost everything else. In most foreign countries, out of necessity people make things last as long as possible. In the U. S. A., vigorous competition prompts improvement, refinement and continuous progress. Buyers of new cars get maximum value, because each manufacturer competes actively for the new-car dollar. Lowest-income groups benefit by the lowered prices of used, yet essentially useful, prod-

ucts. Overall result: Steady jobs, good wages and the world's highest standard of living. In most of the rest of the world, luxuries come within reach of only the rich. In the United States, the irresistible drive of competition invents, mass-produces, advertises, distributes and sells—so that most of the miraculous products of modern living are within the reach of all.

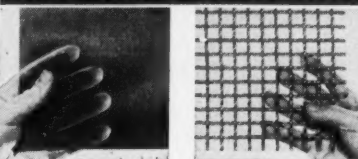
Free competition—like freedom of speech, press and religion—is a dynamic part of Uncle Sam's character. Let's keep it free, so that the U. S. A. continues to be the greatest country in the world.

This report on PROGRESS-FOR-PEOPLE is published by this magazine in cooperation with National Business Publications, Inc., as a public service. This material, including illustration, may be used, with or without credit, in plant city advertisements, employee publications, house organs, speeches, or in any other manner.

THE COMPETITIVE SYSTEM DELIVERS THE MOST TO THE GREATEST NUMBER OF PEOPLE

Kettles, Corrosion-resistant	170	Oils, Alkyd	21
Kettles, Stainless	204	Oils, Fast-drying	45
		Oils, Lubricating	63
		Organic Chlorine Compounds	33
		Ovens	100, 106, 210
		Oxalic Acid	210
		P	
Labeling Machines	140	Packaging Desiccants	37
Laboratory Equipment	100	Packaging Machines	145
Lacquers (Military)	199	Packing, Foam Rubber	61
Ladders, Double-step	163	Packings, Asbestos	214
Lamps, Black Ray	108	Packings, Teflon 138, 163, 194,	214
Lead Cyanamide	24	Paint Resins	44
Lenses, Plastic	132	Paints	187
Lifts, Platform	57	Pallets	187
Lighting Fixtures	169	Panelboards, Circuit-breaker	195
Linens, Box & Drum	143	Peroxides, Use of	74
Lithium	174	Phosphates	33
Lithium Stearate	191	Photoelectric Equipment	77
Lotions, Skin	137	Pipe, Plastic	164, 202
Lubricants	156	Pipe, Rubber lined	207
Lubricants, Colloidal Graphite	64	Pipe, Stainless	188
Lubricants, Synthetic	19	Pipe, Threaders	176
Lubricating Oils	63	Pipe Design	183
Lubrication Systems, Valves	63	Pipe Layout	154
Lubricators, Plug Valve	161	Pipe Vises	180
		Pipeline Heating, Electric	8
		Plant Construction	175
		Plasma Substitute	70
		Plastic Molding Equipment	118
		Plastic-armored Porcelain	157
		Plasticizers, Monomeric	33, 34, 204
		Plasticizers, Sulfonamide	25
		Plastics, Processing Aids	36
		Plastics, Reinforced	24
		Plastics for Laminates	43
		Plastics Specifications, Vinyl	32
		Polishing Wheels	68
		Polyacrylonitriles, Hydrolyzed	185
		Polystyrene Foam Plastics	39
		Porcelain, Plastic-armored	191
		Potassium Chloride	157
		Potassium Sulfate	21
		Potentiometers	21
		Pre-plasticizing Machines	203
		Preservative Wood	202
		Presses, Pneumatic	124
		Processing Equipment	15, 121, 122, 124, 158
		Proportioning Equipment	12
		Pulleys, Variable Speed	165
		Pumps	212
		Pumps, Acid	161
		Pumps, Centrifugal	9, 136, 156, 159, 162, 164, 186, 194
		Pumps, Chemical	151
		Pumps, Controlled Volume	195
		Pumps, Double-suction	150
		Pumps, Injector	153
		Pumps, Jet	201
		Pumps, Packless	115
		Pumps, Polyethylene	108
		Pumps, Process	177
		Pumps, Proportioning	82
		Pumps, Rotary	166, 170
		Pumps, Screw	163
		Pumps, Self-priming	150
		Pumps, Slurry	42, 160
		Pumps, Steam Jacketed	173
		Pumps, Turbine-vane	179
		Pumps, Vacuum	109
		Pushbutton Units	171
		Pyrocons	92
		Pyrometers	85
		Pyrometers, Hand	89
		Pyrophosphates	33
		Q	
		Quaternaries	41
		R	
		Racks, Heating Element	202
		Racks, Pallet	50
		Racks, Skid	50
		Radiation Detectors	72
		Radiological Monitoring	102
		Raw Material, Specifying	197
		Recorders, Electric	83
		Recorders, Flow	93
		Recorders, Open-channel Flow	93
		Recorders, Viscosity	93
		O	
Oiling Systems	168	Nozzles, Graphite	172
Oils	198	Nozzles, Spray 108, 130, 174, 192	
		Nuts, Locking	163
		N	
		Nozzles, Graphite	172
		Nozzles, Spray 108, 130, 174, 192	
		Nuts, Locking	163

You can count on CAMBRIDGE for all types of INDUSTRIAL WIRE CLOTH



FINE OR COARSE MESH

More than 600 different mesh sizes are available from 20 x 250 mesh up to 4" openings. Many popular items are kept in stock and can be shipped to you immediately.

ANY METAL OR ALLOY

Any metal or alloy that can be drawn into wire can be woven into wire cloth by our skilled craftsmen, including precious metals and unusual materials such as lead wire.

VARIED WEAVES

Cambridge industrial wire cloth is regularly produced in nine basic weaves. Single intermediate crimp through twilled dutch filter cloth, each of which has certain advantages for specific uses.

ACCURACY

You know the mesh count is right when you specify Cambridge. Every inch of cloth produced in our plant is carefully controlled by individual loom operators during weaving; each finished piece is again carefully inspected before shipping.

AND, FOR EXPERT ADVICE

on any problem of filtration, screening, sizing or other wire cloth uses, you can count on your Cambridge field engineer to provide the answer. Call on him freely. For information, write direct or look under "Wire Cloth" in your classified telephone directory.

FREE wire cloth reference manual. Gives complete range of sizes and weaves available from Cambridge. Also specifications, metallurgical data and fabrication facilities. WRITE TODAY



The Cambridge Wire Cloth Co.

Dept. F • Cambridge 6, Md.



OFFICES IN PRINCIPAL INDUSTRIAL CITIES

When inquiring check CP 3439 on handy form, pgs. 2-3

Refractories	124
Refractories	76, 77, 99
Refractory Products	189
Refrasil	212
Refrigerators	133
Regulators, Pressure	87
Regulators, Temperature	91
Relays, Amplifier	89
Relays, Electronic	77
Relays, Pressure	89
Resins	26, 42
Resins, Alkyd	40
Resins, Coating	29, 42
Resins, Fluorinated	20
Resins, Laminating	26, 32
Resins, Plastic	4th Cover
Resins, Polyvinyl Chloride	20
Resins, Styrene Copolymer	24
Resins, Vinyl Acetate	28
Rods, Teflon	178
Roller Chains	190
Roof Maintenance	196
Rotameter Data	184
Rotameters	92
Rubber, Oil-Resistant	35
Rubber, Synthetic	23
Rubber, Processing Aids	24
Rust Removal Guide	200
Rusting, Steel	34

S

Safety Heads	5
Safety Program	126
Sampling Bulk Materials	110
Santizer 3	36
Scales	51, 108, 140
Scales, Variable	62
Science Executives	197
Screens, Dewatering	211
Screens, Filter	112
Screens, Pulp	114
Screw Anchors	106
Scrubbers, Gas	164
Seals, Teflon	172
Separators, Magnetic	11, 197
Separators, Steam	149
Sequestering Agents	38
Shaper, Metal Working	185
Sheets, Teflon	178
Shovel-crane	55
Sifters, Gyratory	73
Sifters, Turbo	101
Silica Aerogel	33
Silicone, Properties	16
Silos, Concrete	52
Silver Iodate	110
Skids	187
Smoke Indicators	15
Sodium B-Naphthyl Phosphate	110
Softeners, Textile	38
Soil Conditioners	39
Solvent Extraction	14, 43
Solvents	23, 34, 44
Spectrophotometers	111
Spectrophotometric Analyses	94
Spectroscopy	189
Speed Reducers	149
Spigots, Glass	173
Stannates, Metallic	196
Stapling Machines	146
Starches	25
Static Detector	133
Static Eliminators, Electrical	108
Steam Traps	176, 200
Stearates	45
Steel Rusting	34
Steels, Hardenability of	62
Stop Clocks	102
Strainers	94, 112
Strainers, Pipeline	12, 198
Strapping, Steel	73
Studding Outlets	170
Sulfur Dioxide	102
Switches, Cam-operated	175
Switches, Hopper Level	198
Switches, Time	166

T

Tachometers	86
Tanks, Aluminum	214
Tanks, Concrete	52
Tanks, Fiberglass	118
Tanks, Storage	74
Tapes, Marking	105
Teflon	66
Testers, Air Content	69
Testers, Conductivity	129

Testers, Insulation	85
Testers, Moisture	96
Testers, Motor	161
Testing Bulk Materials	110
Testing Equipment	82
Textile Deterioration, Cotton	76
Thermistors	109
Thermodynamic Properties	50
Thermometers	82
Thermometers, Control	198
Thermometers, Dial	92
Thread Compounds	174
Timers	83, 107
Tires	205
Titanium Production	69
Tower Fittings, Impervious	67
Graphite	67
Towers, Scrubbing	211
Tracing Cloth	193
Transformers	167, 193
Transformers, Mercury Lamp	200
Transmissions, Variable	177
Transmitters, Pressure	84
Transport of Viscous Fluids	8
Truck Accessories	48, 58
Trucks, Lift	47, 49, 52, 54, 164
Trucks, Overhead Guard	136
Trucks, Walkie	51
Tube	134, 185
Tube, Aluminum	134
Tube, Heat Exchanger	187
Tube, Instrument	86
Tube, Plastic	164
Tube, Seamless	193
Tube, Stainless	183, 188
Turbines, Steam	62
TV in Industry	182

U

Unions, Steel	194
---------------	-----

V

Valves	94, 199, 213
Valves, Air Control	168
Valves, Check	90
Valves, Chemical Porcelain	179
Valves, Control	87
Valves, Corrosion-resistant	163, 191, 197
Valves, Diaphragm	110, 199
Valves, Electrically Heated	159
Valves, Fire Protection	136
Valves, Flexible	82
Valves, Flow Control	198
Valves, Gate	171
Valves, Lubricated Plug	69
Valves, Pressure	162
Valves, Regulating	14, 87, 98
Valves, Safety	113
Valves, Solenoid	166, 194
Valves, Vacuum	120
V-Belts	131
Ventilators	136
Vibrators, Electric	198
Vibrators, Pneumatic	206
Vinyl Film Extruding	64
Vinyl Films, Extruded	144
Viscometers	94, 104

W

Washfountains	100
Water Conditioning	127
Water Softeners	42, 110
Waxes	177
Waxes, High-melting	45
Waxes, Synthetic	37
Welding Alloys	73
Welding Design	160
Welding Electrodes	9
Weir, Proportioning	95
Wetling Machines for Plastics	120
Wetting Agents	7, 42
Wire Mesh	112

X

X-ray Diffraction Cameras	109
---------------------------	-----

REEVES

Vari-Speed Motodrive®

a complete variable speed power plant
in one, space-saving package



Makes machine "changeovers" easier! faster! cheaper!

REEVES Vari-Speed Motodrive—easily incorporated in new designs by the builder, or applied to equipment already in service—is a compact, self-contained unit which gives any machine all the advantages of stepless speed adjustability. With the turn of a handwheel, the touch of a button, or automatically—and without stopping the machine—the correct speed is instantly obtained to meet the requirements of any shape, size or material being handled.

Give your machines a broader work range . . . extra "changeover" capacity . . . by standardizing on REEVES Vari-Speed Motodrive. Sizes to 25 hp; speed ratios as great as 10 to 1. Send for complete information to Dept. 8CP.

REEVES PULLEY COMPANY • COLUMBUS, INDIANA

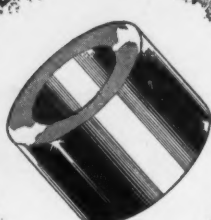
Recognized leader in variable speed control

Stepless! Accurate! Positive!

REEVES Variable Speed Drives

When inquiring check CP 3440 on handy form, pgs. 2-3

WORKS WHERE OTHERS WON'T



for
**SUBMERGED
OILLESS
BEARINGS**



- OPERATE DRY or SUBMERGED IN DYES, PLATING, CLEANING & CHEMICAL SOLUTIONS, GASOLINE, FOODSTUFFS
- TRULY OILLESS AND SELF-LUBRICATING
- EXTREMELY DURABLE
- CONSTANT COEFFICIENT OF FRICTION
- APPLICABLE OVER A WIDE TEMPERATURE RANGE — even where oil solidifies or carbonizes
- EXTENSIVELY USED IN CONVEYORS, PUMPS & OVENS
- ROTATING SEALS OF GRAPHALLOY ARE UNEXCELLED

**GRAPHITE METALLIZING
CORPORATION**

1004 NEPPERHAN AVENUE, YONKERS 3, NEW YORK

When inquiring check CP 3441 on handy form, pgs. 2-3

Advertisers in this issue

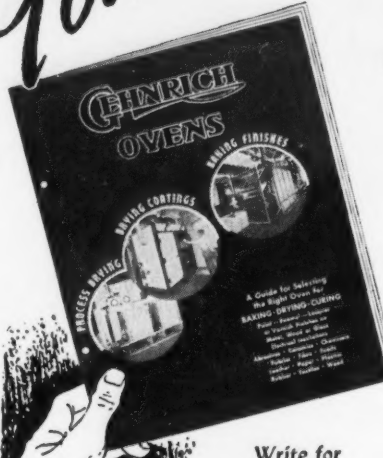
A	
Abbe Engineering Co.	101, 110
Agency-Spooner & Kriegel	
Adams Co., Inc., R. P.	139
Agency-Melvin F. Hall Adv.	
Agency, Inc.	
Advance Solvents & Chemical Corp.	23
Agency-Asber, Godfrey & Franklin Inc.	
Airetool Manufacturing Company	
Agency-Harry M. Miller, Inc.	
Air Reduction Magnolia Co., A Division of Air Reduction Company, Incorporated	22
Agency-G. M. Basford Co.	
Ajax Flexible Coupling Co., Inc.	55
Agency-Horace A. Laney	
Alberene Stone Corporation of Virginia	
Agency-G. M. Basford Co.	
Alconco, Inc.	42
Agency-Merceready, Handy & Van Denburgh	
Allis-Chalmers Mfg. Co.	192
Agency-Compton Advertising, Inc.	
Alloy Steel Products Co., Inc.	
Agency-James Thomas Chirurg Company	
Aluminum Company of America	
Agency-Fuller & Smith & Ross, Inc.	
Aluminum Company of America, Chemicals Division	
Agency-Ketchum, MacLeod & Grove, Inc.	
Alvey Conveyor Mfg. Co.	48
Agency-Oakleigh R. French & Associates	
American Agile Corporation	184
Agency-Herb W. Buereer	
American Chain & Cable, R-P&C Valve Division	213
Agency-Reinke, Meyer & Finn, Inc.	
American Cyanamid Company, Industrial Chemicals Division	
Agency-Hazard Advertising Company	
American District Steam Company, Inc.	189
Agency-Warman, Robins & Gorham, Inc.	
American Machine and Metals, Inc., Tolhurst Centrifugals Division	
Agency-The L. W. Ramsey Adv. Agency	
American Tool and Machine Company	
Agency-James Thomas Chirurg Company	
Ames Iron Works	
Agency-Melvin F. Hall Adv.	
Agency, Inc.	
Ampco Metal, Inc.	78, 79
Agency-Hoffman & York, Inc.	
Analytical Measurements, Incorporated	
Agency-Paul M. Healy Adv. Service	
Ansul Chemical Company, Industrial Chemicals Division	
Agency-I. A. Cormack	
Antara Chemicals Division of General Dyestuff Corporation	
Agency-The House of J. Hayden Twiss	
Aqua-Therm, Inc.	211
Agency-The Parker Advertising Company	
Armour and Company	40, 41
Agency-Foote, Cone & Belding	
Atlantic Metal Hose Co., Inc.	
Agency-The Weston Company	
Atlas Mineral Products Company	
Agency-Thomas R. Sundheim	
"Automatic" Sprinkler Corporation of America	
Agency-G. M. Basford Co.	
Automatic Switch Co.	194
Agency-Sanger-Finnell, Incorporated	
B	
Babcock & Wilcox Company, The, Tubular Products Division	
Agency-O. S. Tyson and Company, Inc.	
Baker & Adamson, General Chemical Division, Allied	
C	
Chemical and Dye Corporation	
Agency-Alberton & Currier, Inc.	
Baker Industrial Truck Division of The Baker-Raulang Company	
Agency-G. M. Basford Co.	
Baker Perkins Inc., Chemical Machinery Division	
Agency-Price, Hedrick & Tanner, Inc.	
Barnstead Still & Sterilizer Co.	
Agency-Copley Advertising Agency, Inc.	
Barrett Division, The, Allied Chemical & Dye Corporation	
Agency-Anderson & Cairns, Inc.	
Barton Instrument Corporation	
Agency-Steller, Millar & Lester, Inc.	
Bauer Bros. Co., The	
Agency-The Parker Advertising Company	
Beach-Russ Company	
Agency-Spooner & Kriegel	
Bemis Bros. Bag Company	
Agency-Gardner Advertising Co.	
Bin-Dicator Co., The	
Agency-Clark & Richerd, Inc.	
Bird Machine Company	
Agency-Walter B. Snow & Staff, Inc.	
Black, Sivalls & Bryson, Inc.	
Agency-R. J. Potts, Calkins & Holden, Inc.	
Blaw-Knox Division of Blaw-Knox Company	
Agency-Al Paul Leiston Company, Inc.	
Blickman, Inc., S.	
Agency-Jules Lippit	
Boston Woven Hose & Rubber Company	
Agency-Sutherland-Abbott	
Bradley Washfountain Co.	
Agency-Kirkgaster-Drew	
Brighton Copper Works, Inc.	
Agency-Strauchen & McKim	
Bristol Company, The	
Agency-James Thomas Chirurg Company	
Brookfield Engineering Laboratories, Inc.	
Agency-F. P. Walther, Jr. & Associates	
Brooks Rotameter Company	
Agency-The Roland G. E. Ullman Org.	
Brown Company	
Agency-I. M. Matthes, Incorporated	
Buffalo Forge Company and Buffalo Pumps, Inc.	
Agency-Melvin F. Hall Adv.	
Agency, Inc.	
Buffalo Meter Co.	
Agency-Melvin F. Hall Adv.	
Agency, Inc.	
Bufflovak Equipment Division of Blaw-Knox Company	
Builders Provid-nce, Inc. (Division of Builders Iron Foundry)	
Agency-Hammond-Goff Co.	
Burrell Corporation	
Agency-Frank Wilhelms	
B/W Controller Corporation	
Agency-Rolfe C. Spinning, Inc.	
C	
Cambridge Wire Cloth Co., The	
Agency-Emery Advertising Corporation	
Canadian Oil Companies Ltd., The	
Agency-Crombie Advertising Co. Ltd.	
Carbide and Carbon Chemicals Company, A Division of Union Carbide and Carbon Corporation, Textile Fibers Dept.	
Agency-Anderson & Cairns, Inc.	
Carbide and Carbon Chemicals Company, A Division of Union Carbide and Carbon Corporation	
Agency-J. M. Matthes, Incorporated	
Carborundum Co., The, Refractories Division	
Agency-G. M. Basford Co.	
Carrier Conveyor Corporation	
Agency-Doe-Anderson Adv. Agency	
Carrier Corporation	
Agency-N. W. Ayer & Son, Incorporated	

Yours

HELPFUL IDEAS

on Process Drying Baking • Curing

of Chemicals • Ceramics Fabrics • Fibres • Foods Leather • Paper • Plastics Rubber and Wood Organic Finishes on Metal or Wood • Cores and Electrical Insulations

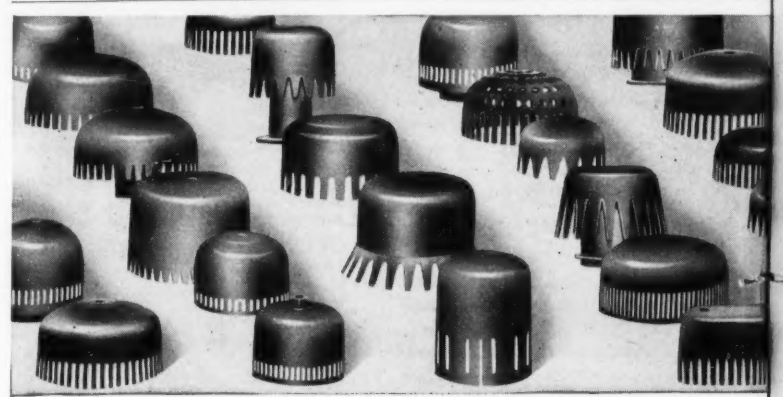


Write for
Catalog
No. 122

W. S. ROCKWELL COMPANY
GEHRICH OVEN DIVISION

220 Elliot Street • Fairfield, Conn.

When inquiring check CP 3442 on handy form, pgs. 2-3



SEND FOR PSC BUBBLE CAP BULLETIN 21

Largest Compilation of Engineering Data.
Lists 200 Styles Furnished Without Die Cost.

This standard reference contains complete specification information for over 200 standard styles of bubble caps and risers. Also drawings for use in determining methods of tray assembly. All styles listed in Bulletin 21 are furnished promptly, without die cost, and in any alloy to meet your coking or corrosion problems. Special caps gladly designed; write as to your needs.

THE PRESSED STEEL CO., 709 N. Penna. Ave., Wilkes-Barre, Pa.

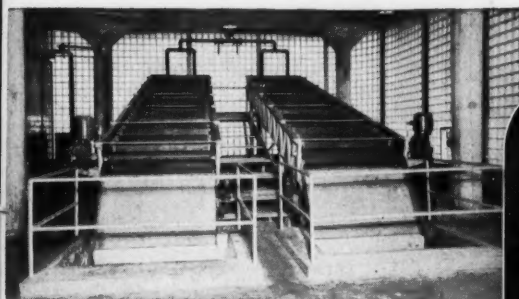
Custom Fabricators for the Process Industries Since 1928. Send Your Blue Prints

When inquiring check CP 3443 on handy form, pgs. 2-3

"DAVENPORT"

CONTINUOUS PADDLE

DEWATERING SCREEN



Recovering Waste Pulp

If concentrating the suspended solids is a problem in your process, it would pay you to investigate the Davenport Continuous Inclined Paddle type Dewatering Screen. Write for our complete catalog.

For quick reference see "Sweet's 1952 Processing Industries" file.

DAVENPORT MACHINE
and **FOUNDRIY COMPANY**
DAVENPORT 4, IOWA

When inquiring check CP 3444 on handy form, pgs. 2-3

GUARANTEED

**ACID-PROOF
CONSTRUCTION**

For a guaranteed solution to your acid-alkali corrosion problem, Aqua-Therm provides PROVED materials and TRAINED field personnel.

- CUTS REPAIRS AND MAINTENANCE
- ELIMINATES COSTLY DOWN TIME

Write for Bulletin No. 160

ACID-PROOF BRICK • CEMENTS • MEMBRANE LINING

Aqua-therm Inc. DAYTON • OHIO

SCRUBBING TOWERS • PRODUCT RECOVERY & PROCESS TOWERS

When inquiring check CP 3445 on handy form, pgs. 2-3

DAVENPORT

De-watering Presses and Screens.

ROTARY

Steam Tube, Hot Air and Direct Fire Dryers.

Water Tube and Air Coolers.

Catawissa Valve & Fittings Co. 194	Elmco Corporation, The 203
Agency-Charles E. Williams	Agency-Mattie Company
Chain Belt Company 59	Elgin Softener Corporation 110
Agency-The Buchen Company	Agency-Kretcher & Inelton, Inc.
Chase Bag Co. 146	Elliot Company, Industrial Process Dept. 164
Agency-The Buchen Company	Agency-Peterson & Kempner, Inc.
Chelsea Fan & Blower Co., Inc. 66	Elliot Co., Roto Division 98
Agency-George Homer Martin Associates	Agency-Joseph S. Vogel & Co.
Chemical and Power Products 172	Elwell-Parker Electric Co., The 47
Agency-DeWane Associates, Inc.	Agency-Lee Bayless-Kerr Company
Chemicolloid Labs., Inc. 158	Eriez Manufacturing Company 11
Chicago Bridge & Iron Company 74	Agency-John Maiter Lupton Company, Inc.
Agency-Russell T. Gray, Inc.	Ertel Engineering Corporation 156
Clark Manufacturing Company, The 14	Agency-W. N. Hudson
Agency-Belden & Hickox	Everlasting Valve Co. 136
Cleveland Vibrator Company, The 206	Agency-Michel-Cather, Inc.
Agency-R. C. Wellman & Associates, Inc.	F
Cleveland Wire Cloth & Mfg. Co., The 112	Fairbanks, Morse & Co. 51
Agency-Interstate Advertising Company	Agency-The Buchen Company
Clipper Manufacturing Co. 118	Fansteel Metallurgical Corporation 108
Cochrane Corporation 66	Agency-Symonds, MacKenzie & Co., Inc.
Agency-Willard G. Myers	Farris Engineering Corp. 113
Adv. Agency	Agency-U. S. Tyson and Company, Inc.
Cole Mfg. Co., R. D. 214	Farris Flexible Valve Corp. 82
Agency-Burton E. Wyatt & Co.	Agency-U. S. Tyson and Company, Inc.
Colson Equipment & Supply Co. 48	Farris Station Corp. 89
Agency-Dan Ebberts	Agency-U. S. Tyson and Company, Inc.
Consolidated Engineering Corporation 93	Felt Products Mfg. Co. 174
Agency-Hixson & Jorgensen Adv., Inc.	Agency-van Auker, Ragland & Stevens
Cooper Alloy Foundry Co., The 207	Filtration Fabrics Division, Filtration Engineers, Inc. 14
Agency-Mahool Advertising, Inc.	Agency-W. L. Towne
Coppus Engineering Corporation 136	Fischbein Co., Dave 142
Agency-James Thomas Chirug Company	Agency-B. E. Fischbein & Associates, Inc.
Corning Glass Works 3	Fischer & Porter Company 16, 17
Agency-Charles L. Rumrill & Co., Inc.	Agency-O. S. Tyson and Company, Inc.
Cowles Company, Incorporated, The 192	Flexonics Corporation, Chicago Metal Hose Division 157
Agency-Taylor M. Ward, Inc.	Agency-Russell T. Gray, Inc.
Cramer Co., Inc., The R. W. 89	Flexrock Company 14, 214
Agency-Edward W. Robotham & Company	Agency-Walter S. Chittick Company
Crane Co. 163	Foster Engineering Company 91
Agency-The Buchen Company	Agency-Danger-Tunnell, Incorporated
Crane Packing Company 138	Foxboro Company, The 81, 92
Agency-Symonds, MacKenzie & Co., Inc.	Agency-Horton-Noyes Company
D	Fuller Company 50
Davenport Machine and Foundry Company 211	Agency-O. S. Tyson and Company, Inc.
Agency-Bawden Bros., Inc.	Fulton Bag & Cotton Mills 141
Davis Emergency Equipment Co., Inc., Instrument Division 130	Agency-Herbert Rogers Company
Agency-United Advertising Agency	G
Day Company, The 114	Garlock Packing Company, The 165
Agency-Harold C. Walker Advertising	Agency-Hutchins Advertising Company, Incorporated
Delta Engineering Sales Co. 161	Gaylord Container Corporation 145
Agency-Bryan & Bryan	Agency-Oakleigh R. French & Associates
Deming Co., The 194	General American Transportation Corporation (Louisville Drying Machinery Unit) 4
Agency-G. M. Basford Co.	Agency-Weiss and Geller, Inc.
Despatch Oven Co. 100	General Industrial Development Corporation 122
Agency-Foulke Agency Inc.	Agency-The House of J. Hayden Twiss
Diamond Chain Company, Inc. 190	General Radio Company 90
Agency-Kirkgasser-Drew	Agency-K. E. Morang Company
Dollinger Corporation 135	Globe Company, The, Grip-Strut Division 130
Agency-Hutchins Advertising Company	Agency-Ross Lewellyn, Inc.
Downingtown Iron Works, Inc. 196	Glycerine Producers' Association 37
Agency-R. E. Lovekin Corp.	Agency-G. M. Basford Co.
Dresser Industries, Inc. (See Root s-Connersville Blower Corp.) 116	Goodrich Chemical Company, B. F. 26
Agency-Fuller & Smith & Ross, Inc.	Agency-The Griswold-Eiselman Co.
DuPont de Nemours & Co., Inc., E. I., Polychemicals Department 66	Goulds Pumps, Inc. 136
Agency-Batten, Barton, Durstine & Osborn, Incorporated	Agency-Charles L. Rumrill & Co., Inc.
Durametallic Corporation 192	Graphite Metallizing Corporation 210
Agency-M. Dale Ogden Advertising	Agency-The Kotula Company
Duriron Company, Inc., The 199	Grinnell Company, Inc. 104
Agency-Kircher, Helton & Collett, Inc.	Agency-Horton-Noyes Company
Dwyer Mfg. Co., F. W. 88	Groen Mfg. Co. 204
Agency-Merchandising Advertisers, Inc.	Agency-Moore Associates Advertising
E	H
Edmont Manufacturing Company 130	Hardinge Company, Inc. 124
Agency-Mumm, Mullay & Nichols, Inc.	Agency-The W. H. Long Co.
	Harper Co., The H. M. 194
	Agency-The Buchen Company
	Harrisburg Steel Corporation 10
	Agency-The W. H. Long Co.

ANY RPM

by simple
dial
control



NEW in design
LIGHT in weight
LOW in price

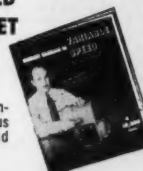
This amazing motor gives you any speed you want—*instantly*—by merely turning a dial. It's light enough to mount on any machine but built to exacting specifications of heavy-duty industrial type Varidrive. There are 24 combinations of speed ranges to choose from in ratios to 10 to 1. With this miracle Varidrive motor you can increase the capacity of your machines, control your speeds for better quality and increased efficiency.

VARIABLE SPEEDS

- 4 TO 10,000 RPM
- RATIOS—10 TO 1
- INSTANT CHANGE
- NEATLY HOUSED
- SMOOTH—QUIET

GET THIS BULLETIN

Mail Coupon . . . gives complete information about various modifications. Upright and horizontal models.



U.S. VARIDRIVE
THE MIRACLE MOTOR

U. S. Electrical Motors Inc.
Los Angeles 54, Calif. (Box 2958)

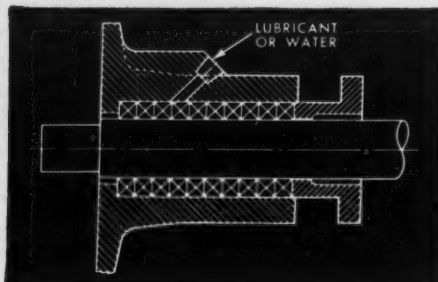
CP-6

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

When inquiring check CP 3446 on handy form, pgs. 2-3

TABER for Higher PRACTICAL Performance

LEARN ABOUT PUMP



STUFFING BOXES

BULLETIN S-147
AVAILABLE

The information about stuffing boxes in this bulletin is designed to suggest solution of common stuffing box difficulties in individual pumping operations. • It offers suggestions on such vital matters as number of rings to use, depth of box, and type of packing. • It points out that chemical and physical properties of the liquid, speed of shaft, pressure, and temperatures are governing factors; that reciprocating piston rods are easier to pack than rotating shafts; that extra-deep boxes are not always the most effective; and that new rings should not be added to packing that has lost its resilience. • Much other valuable information is included. • Please use business stationery when writing for this Bulletin S-147.

TABER PUMP CO. (Est. 1859) 320 Elm St., Buffalo 3, N. Y.

TABER PUMPS

When inquiring check CP 3447 on handy form, pgs. 2-3



for every GAUGING requirement

• Complete line includes inexpensive float and counterweight liquid level indicators for tanks under pressures from 0 to 28 oz. per sq. inch. Also automatic gauges that provide extremely accurate readings without relieving tank pressure. Types for cone, umbrella, floating roof and expansion roof tanks and spheroids. Write for fully descriptive catalog today.

OCECO TANK FITTINGS

THE JOHNSTON & JENNINGS CO.

division of PETTIBONE MULLIKEN CORP.

4751 West Division St.

Chicago 51, Illinois

When inquiring check CP 3448 on handy form, pgs. 2-3

Harshaw Scientific Division of the Harshaw Chemical Co. 97
Hastings Instrument Co., Inc. 90
Agency-Charles Blum Advertising Corporation
Heil Process Equipment Corp. 60
Agency-The Lee Donnelly Co.
Hellige, Inc. 101
Agency-Howard Advertising Associates, Inc.
Hevi Duty Electric Company 101
Agency-Camm, Costigan and Seitz, Inc.
Hewitt-Robins, Incorporated 129
Agency-Fuller & Smith & Ross, Inc.
Heyl & Patterson, Inc. 125
Hills-McCanna Co. 110
Agency-Russell T. Gray, Inc.
Hooker Electrochemical Co. 28
Agency-Charles L. Rumrill & Co., Inc.
Howell Electric Motors Co. 111
Agency-Brooke, Smith, French & Dorrance, Inc.

I

Illinois Testing Laboratories, Inc. 92
Agency-The Buchen Company
Industrial Filter & Pump Mfg. Co. 122
Agency-The Advertising Corporation
Inflico, Inc. 127
Agency-Rutbraun & Ryan, Inc.
Ingersoll-Rand 162
International Minerals & Chemical Corporation, Potash Division 21
Agency-C. Franklin Brown, Inc.
International Nickel Company, Inc. 137
Agency-Marschall & Pratt Co., Inc.
International Paper Company, Bagpak Division 147
Agency-Picard Advertising Co.

J

Jefferson Chemical Company, Inc. 35
Agency-Hazard Advertising Company
Jelliff Mfg. Corp., The C. O. 112
Agency-William Hill Field
Johns-Manville 75, 155
Agency-J. Walter Thompson Company
Johnson Corporation, The 166
Agency-Kreicker & Melan, Inc.
Johnston & Jennings Co., The Division of Pettibone Mulliken Corp. 212
Agency-Henry T. Bourne Advertising Agency, Inc.

K

Kellogg Company, The M. W., A Subsidiary of Pullman, Incorporated 15
Agency-Gordon Baird Associates, Inc.
Kemp Mfg. Co., The C. M. 10
Agency-Vansant, Dagdale & Company
Kinney Manufacturing Co. 109
Agency-Hammond-Goff Co.
Kirk & Blum Mfg. Co., The 106
Agency-The S. C. Baer Company
Klemp Metal Grating Corporation 200
Agency-Symonds, MacKenzie & Company, Inc.
Kold-Hold Mfg. Co. 204
Agency-The Jaqua Company
Koppers Company, Inc., Chemical Division 154
Agency-Batten, Barton, Durnine & Osborn, Incorporated
Korfund Company, Inc., The 54
Agency-Sanger-Funnell, Incorporated
Kuhns Brothers Company, The 120
Agency-The Parker Advertising Company

L

LaBour Company, Inc. The 9
Agency-Grimm & Craigle
LaFavorite Rubber Mfg. Co. 202
Agency-Merceready, Handy & Van Denburgh
Lapp Insulator Co., Inc., Process Equipment Division 112; 179
Agency-Ed Wolf & Associates
Lee Metal Products Co., Inc. 170
Agency-Walker & Downing
Lenape Hydraulic Pressing & Forging Co. 170
Agency-Renner Advertisers

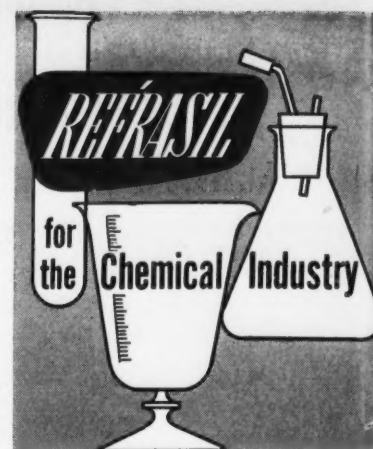
Lewis-Shepard Products, Inc. 164
Agency-Edmund S. Whitten, Inc.
Link-Belt Company 18, 56, 182
Agency-Klaw-Van Pieterom-Danlap Associates, Inc.
Liquidometer Corp., The 88
Agency-Lucerna Company, Inc.
Loveloy Flexible Coupling Co. 178
Agency-Symonds, MacKenzie & Company, Incorporated
Lunkenheimer Co., The 197
Agency-Norman Malone & Associates

M

Mallinckrodt Chemical Works 29
Agency-The Philip Ritter Company, Inc.
Manning & Lewis Engineering Co. 202
Agency-Merceready, Handy & Van Denburgh
Manton-Gaulin Manufacturing Company, Inc. 115
Agency-Sutherland-Abbott
Marathon Corporation, Chemical Division 22
Agency-I. A. Cormack
Marietta Concrete Corporation, The 52
Agency-Harry M. Miller, Inc.
Marley Company, Inc., The 108
Agency-Valentine-Radiford
Mathieson Chemical Corporation 34
Agency-Doyle, Kitchen & McCormick, Inc.
Mehl Mfg. Co. 143
Agency-The S. C. Baer Company
Meriam Instrument Co., The 80
Agency-The Bayless-Kerr Company
Metalab Equipment Corp. 100
Agency-H. J. Gold Co.
Metallurgy Corp., Division of Lithium Corporation of America, Inc. 174
Agency-F. H. Faber, Advertising
Metal Textile Corporation 214
Agency-The Franklin Fader Company
Midland Industrial Finishes Co. 152
Agency-Western Advertising Agency, Inc.
Milton Roy Company 195
Agency-The Harris D. McKinney Organization
Minneapolis-Honeywell Regulator Co., Industrial Division 85
Agency-The Aitkin-Kynett Co.
Mixing Equipment Co., 3rd Cover
Agency-Charles L. Rumrill & Co., Inc.
Moisture Register Company 103
Agency-Willard G. Gregory & Company
Monsanto Chemical Co. 32, 33
Agency-Gardner Advertising Co.
Moore & Company, Samuel, Dekoron Tubing Division 86
Agency-Palm & Patterson, Incorporated
Morris Machine Works 49
Agency-Barlow Advertising Agency, Inc.

N

National Business Publications, Inc. 208
Agency-Henry J. Kaufman & Associates
National Carbon Company, A Division of Union Carbide and Carbon Corporation 67
Agency-William Eby Company, Incorporated
National Distillers Chemical Co., Division of National Distillers Products Corporation 38
Agency-The House of J. Hayden Twiss
National Filter Media Corp., The 158
Agency-Sanger-Funnell, Incorporated
National Starch Products, Inc. 25
Agency-G. M. Basford Co.
Neptune Meter Company 84
Agency-W. L. Towne Advertising
Newark Wire Cloth Company 172
Agency-Sanger-Funnell, Incorporated
Niagara Blower Company 120
Agency-The Moss-Chase Company
Niagara Filter Corporation 64, 65
Agency-Charles L. Rumrill & Co., Inc.



REFRASIL... widely used today in many industries has rapidly become an important filtration and insulation material for the Chemical Industry.

This outstanding new product is a fibrous, high silica content, all mineral substance which is chemically stable, unaffected by ordinary acids, and is resistant to fire, water and moisture.

REFRASIL, light in weight and versatile in use is available in a variety of physical forms as illustrated below.

IMPORTANT FEATURES

- ★ Filtration of corrosive or high temperature materials
- ★ Chemical resistance of pure silica.
- ★ Extreme temperature resistance.
- ★ Low thermal conductivity.
- ★ Good acoustical insulation.
- ★ Catalyst or Catalyst support.



CONSULTATION SERVICE

Without obligation to you, our engineers are available for consultation regarding your high temperature or filtration problems. REFASIL is produced in a variety of forms for your needs. Write us today, or simply attach this ad to your letterhead and mail today for illustrated literature.



REFRASIL REPRESENTATIVES

Eastern:
Fred W. Muhlenfeld
6459 Loch Hill Rd.
Baltimore 12, Md.
Volley 3135

Texas, Ohio, & Kansas:
Thompson Engineering Service
708 Hampshire St.
Fort Worth 4, Texas
Fortune 5340

Midwest:
Bursie L. Wadell
3219 West 27th St.
Indianapolis 22, Ind.
Hickory 8885



THE H. I. THOMPSON COMPANY
1723 CORDOVA STREET
LOS ANGELES 7, CALIF.

When inquiring check CP 3449 on handy form, pgs. 2-3

CHEMICAL PROCESSING

This FREE folder
gives the facts
about cutters for
the RUBBER
INDUSTRY



This new 4-page folder talks about types of cutters now in use in the manufacture of rubber products and gives some of the uses made of them.

Among the cutters are:

TAYLOR-STILES TANDEM CUTTERS

—for cross cutting sheets of rubber stock into pieces of approximately uniform size.

TAYLOR-STILES DICING CUTTERS

—produces pellets from sheets of rubber stock in a single operation.

Selection of any one of these cutters for a specific cutting job takes into consideration the kind of cuttings, the stock to be cut, and the end uses of the cut stock.

Send for your copy of this rubber cutter folder today.

TAYLOR-STILES
and
Company
CUTTING MACHINES & KNIVES

20 Bridge Street
Riegelsville, New Jersey

When inquiring check CP 3450
on handy form, pgs. 2-3

Nicholson & Co., W. H. 176	Richardson Scale Company, The 56
Agency-Wilbur A. Myers	Agency-O. S. Tyson and Company, Inc. 180
Northern Cooperage Co., Division of Grief Bros. Cooperage Corp. 142	Ridge Tool Company, The 180
Agency-E. T. Holmgren, Inc.	Agency-Carr Liggett Advertising, Inc. 58
Norton Company 99	Robinson Air-Activated Conveyor Systems, A Division of Morse Boulder Destructor Co. 58
Agency-James Thomas	Agency-Sanger-Funnell, Incorporated 92
Cbirurg Company	Rochester Manufacturing Company, Inc. 92
O	Agency-Charles L. Rumrill & Co., Inc. 86
Oakite Products, Inc. 200	Rockwell Manufacturing Co. 86
Agency-Rickard & Company, Inc.	Agency-Marsteller, Gebhardt and Reed, Inc. 94, 210
Oberdorfer Foundries, Inc., Industrial Pump Div. 186	Rockwell Co., W. S. 94, 210
Agency-Richards & Webb, Inc.	Agency-Spooner & Kriegel
Oliver United Filters, Inc. 160, 161	Rohm & Haas Company 31
Agency-Sanger-Funnell, Incorporated	Agency-John Falkner Arndt & Company, Inc. 116
Omega Machine Company, Division of Builders Iron Foundry 200	Roots-Connersville Blower Corporation 116
Agency-Hammond-Goff Co.	Agency-Fuller & Smith & Ross, Inc. 170
Onyx Oil & Chemical Company, Industrial Division 43	Roper Corporation, Geo. D. 170
Agency-Spooner & Kriegel	Agency-Cummings, Brand & McPherson
Orr & Sembower, Inc. 196	Ruppigh's Rotary Roof Cooler 198
Agency-Beaumont, Heller & Sperling, Incorporated	
Oster Mfg. Co., The 176	S
Agency-G. M. Basford Co.	Safety Car Heating & Lighting Co., The, Entoleter Division 96
P	Agency-J. C. Bull, Inc. 94
P & L Welding & Machine Works, Inc. 158	Sarco Company, Inc. 94
Pangborn Corp. 150	Agency-Gus Binz Associates
Agency-Vanant, Dugdale & Company	Sawyer & Son Co., The H. M. 128
Patterson Foundry & Machine Company, The 118	Agency-Donald W. Gardner Advertising
Agency-Walker & Downing	Schutte and Koerting Co. 173
Patterson-Kelley Co., Inc., The 117	Agency-The Harris D. McKinney Organization
Agency-O. S. Tyson and Company, Inc.	Screw Conveyor Corporation .. 48
Pawtucket Manufacturing Co. 160	Agency-R. J. Skala Company
Company	Sharples Corporation, The 119
Peabody Engineering Corp. 164	Agency-Renner Advertisers
Agency-Richard LaFond Advertising, Inc.	Shriver & Company, Inc., T. 166
Peerless Pump Division, Food Machinery and Chemical Corporation 151	Agency-Spooner & Kriegel
Agency-The McCarty Company	Sier-Bath Gear and Pump Co., Inc. 162
Penberthy Injector Company, Division of the Buffalo-Eclipse Corporation 201	Agency-Thoma & Gill
Agency-Witte & Burden Advertising	Sly Manufacturing Co., The W. W. 185
Pennsylvania Industrial Chemical Corp. 42	Agency-The Bayless-Kerr Company
Agency-Walker & Downing	Sorvall, Inc., Ivan 100
Pfaunder Co., The 72	Agency-Hudson Advertising Co.
Agency-Charles L. Rumrill & Co., Inc.	Special Screw Products Co., The 198
Pfizer & Co., Inc., Chas. 36	Agency-C. D. Heiser
Agency-MacMannus, John & Adams, Inc.	Spence Engineering Company, Inc. 87
Pioneer Rubber Company, The 132	Agency-Michel-Cather, Inc.
Agency-Carr Liggett Advertising, Inc.	Spencer Turbine Company, The 202
Potts Company, Horace T. 196	Agency-W. L. Towne Advertising
Agency-Beaumont, Heller & Sperling, Incorporated	Spo Incorporated 54
Premier Mill Corp. 70, 71	Agency-Penn and Hamaker Incorporated
Agency-Rogers & Porter	Spraying Systems Co. 192
Pressed Steel Co., The 210	Agency-Advertising Producers Associated
Agency-Wilbur A. Myers	Sprout, Waldron & Company, Inc. 132, 176
Process Industries Engineers, Inc. 12	Agency-Stephen Goel Associates, Inc.
Agency-The Albert P. Hill Co., Inc.	Standard Conveyor Company 52
Prufcoat Laboratories, Inc. 169	Agency-Klan-Van Pietersom-Dunlap Associates, Inc.
Agency-F. P. Walther, Jr. and Assoc.	Steel and Tubes Division of Republic Steel Corporation 188
Putnam Publishing Company .. 152	Agency-Meldrum & Fewsmith, Inc.
Pyrene Manufacturing Co. 129	Agency-Gray & Rogers
Agency-Gray & Rogers	
R	Stephens-Adamson Mfg. Co. 53
Read Standard Corporation 156	Agency-Glenn-Jordan-Stoetzel, Inc.
Agency-Davies & McKinney	Strong, Carlisle & Hammond Company 98
Read Standard Corporation 178	Agency-Fuller & Smith & Ross, Inc.
Agency-The W. H. Long Company	Stupakoff Ceramic & Manufacturing Co. 72
Reeves Pulley Company 209	Agency-Walker & Downing
Agency-Caldwell, Larkin & Company, Inc.	Sturtevant Mill Company 121
Reichhold Chemicals, Inc. 4th Cover	Agency-Sutherland-Abbott
Agency-MacMannus, John & Adams, Inc.	Swenson Evaporator Co., Division of Whiting Corporation 107
Republic Steel Corporation, Steel and Tubes Division 188	Agency-Waldie and Briggs, Inc.
Agency-Meldrum & Fewsmith, Inc.	Syntron Company 174, 198
Resistoflex Corporation 178	T
Agency-Rickard & Company, Inc.	Taber Pump Co. 212
Revere Copper and Brass Incorporated	Agency-Tyler Kay Company, Inc.
Agency-St. Georges & Keyes, Inc.	Taylor Instrument Company 82
	Agency-Batten, Barton, Durnine & Osborn, Incorporated

an
ACCO
product



No. 6056
600-lb. R-P&C
Forged Steel
Gate Valve

Premium Quality Features

● Body, bonnet, yoke, wedge, and hand-wheel of this sturdy R-P&C Gate Valve are forged steel. Wedge is heat-treated. Seating surfaces are smoothly ground and chromium plated for near diamond hardness. Stainless steel swinging gland eye-bolts and nuts won't corrode or freeze. Furnished in 1/4" to 2" sizes. Screwed, flanged, or welded end.

It's a premium quality valve but NOT premium priced. See your R-P&C distributor or write nearest R-P&C district office.

ACCO



R-P&C VALVE DIVISION
AMERICAN CHAIN & CABLE

Reading, Pa., Atlanta, Baltimore, Boston, Chicago, Denver,
Detroit, Houston, New York, Philadelphia, Pittsburgh,
San Francisco, Bridgeport, Conn.

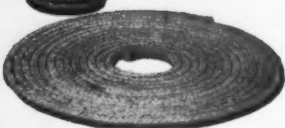
R-P&C
valves

When inquiring check CP 3451 on handy form, pgs. 2-3

TEFLON IMPREGNATED ASBESTOS PACKING

The Advantages of Teflon

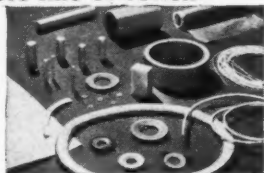
PLUS
Greater Resiliency
Moderate Cost



Chemically inert, heat-resistant, anti-hesive Teflon has solved many tough packing problems. But under certain conditions (ambient temperature, etc.) Teflon's cold-flow characteristics have caused trouble. The solution to the cold-flow problem is Flexrock's #401 braid-over-braid white asbestos packing impregnated throughout with Teflon. #401 offers solid Teflon advantages plus superior resiliency, permitting a tight, lasting seal at low gland pressure against acids, alkalis and solvents. #401 is versatile, moderately priced, helps eliminate the need for expensive, machined Teflon rings. Stock it for all applications demanding absolute non-corrosion, non-contamination. Will never "seize" a shaft or spindle; serviceable from -100°F. to 500°F. Furnished in continuous lengths, square cross-section, from 1/4" to 1" by 1/8" increments.

A Complete line of Teflon—

Packing
Gaskets
Stock
Special
Shapes



All types of solid or impregnated Teflon packing in endless ring or continuous braided construction. Solid Teflon or Teflon-jacketed gaskets. Teflon sheets, tape, cylinders, rods, tubing, bars. Also, special shapes.

Mechanical Packing Division

FLEXROCK COMPANY

PHILADELPHIA 4, PA.



Mechanical Packing Division
FLEXROCK COMPANY

3611 Filbert Street, Philadelphia 4, Pa.

- ☐ Send more information on #401 Packing.
- ☐ Send information on these other Teflon products _____

Name _____ Title _____
Company _____
Address _____
City _____ Zone _____ State _____

Please clip coupon to Company letterhead

When inquiring check CP 3452
on handy form, pgs. 2-3

Taylor-Stiles and Company 213	U. S. Stoneware Co. 171
Agency-S. M. Ferrer	Agency-Ralph Gross Advertising, Inc.
Tennessee Eastman Company, Division of Eastman Kodak Company 44	United States Gasket Company, Fluoro-carbon Products Division 74
Agency-Kenyon & Eckhardt, Inc.	Agency-Michener & Holland
Tennessee Corporation, Organic Chemicals Division 24	United States Rubber Company 126
Agency-Crawford & Porter, Inc.	Agency-Fletcher D. Richards, Inc.
Tennessee Corporation 102	V
Agency-Crawford & Porter, Inc.	Vanderbilt Co., R. T., Specialties Department 150
Thompson Company, The H. I. 212	Agency-The Publication Services, Inc.
Agency-Hixon & Jorgensen Advertising	Vanton Pump Corp. 106
Titelflex, Inc. 153	Agency-Kenneth Rader Company
Agency-John Falkner Arndt & Company, Inc.	W
Toledo Scale Company 140	Wagner Electric Corporation .. 167
Agency-Beson & Reichert, Inc.	Agency-Arthur R. Mogge, Incorporated
Tote System Inc. 58	Western Lithograph Co. 142
Agency-Ayres and Associates	Agency-John H. Riordan Co.
Trane Company, The 68	Western Precipitation Corporation 105
Agency-Campbell-Mithun, Inc.	Agency-Dozier-Eastman and Company
Trent, Inc. 202	Weston Electrical Instrument Corporation 88
Agency-George C. Taylor	Agency-G. M. Basford Co.
Trent Tube Company, Subsidiary of Crucible Steel Company of America 183	Wiegand Co., Edwin L. 181
Agency-G. M. Basford Co.	Agency-Smith, Taylor & Jenkins, Inc.
Tropical Paint & Oil Company 168	Wigton-Abbott Corporation 174
Agency-The Fred M. Randall Company	Agency-Lewis Advertising Agency
U	Williams Gauge Co., The 90
Ultra-Violet Products, Inc. 108	Agency-Walker & Downing
Agency-Edward S. Kellogg Company	Willson Products, Inc. 132
Union Bag & Paper Corporation 144	Agency-Beaumont, Heller & Sperling, Incorporated
Agency-Smith, Hagel & Snyder, Inc.	Witco Chemical Company 45
Union Carbide and Carbon Corporation, Carbide & Carbon Chemicals Company, Textile Fibers Dept. 102	Agency-Hazard Advertising Company
Agency-Anderson & Cairns, Inc.	Worthington Corporation, Steam Power Division, Ejector Section 61
Union Carbide and Carbon Corporation, Carbide & Carbon Chemicals Company 39	Agency-James Thomas Chirurg Company
Agency-J. M. Matheis, Inc.	Worthington Corporation, Steam Turbine Division 62
Union Carbide and Carbon Corporation, National Carbon Company 67	Agency-James Thomas Chirurg Company
Agency-William Eddy Company, Inc.	Y
Union Special Machine Co. 140	Yale and Towne Manufacturing Co., The 49
Agency-Armstrong Advertising Agency	Agency-Ruthrauff & Ryan, Inc.
United Chromium, Incorporated 106	Yarnall-Waring Company 130, 198
Agency-Richard & Company, Inc.	Agency-Michener & Holland
U. S. Electrical Motors, Inc. .. 211	York-Shipley, Inc., Industrial Division 162
Agency-The McCarty Company	Agency-The W. H. Long Company
	Youngstown Welding & Engineering Co., The 134
	Agency-Flad-Erwin

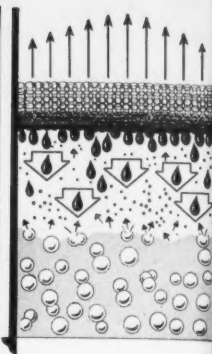
Advertising Representatives

CHICAGO 11, 111 East Delaware Place, Whitehall 4-5977, C. H. Thomas, Vice Pres.; Charles H. Oestmann, Richard H. Putman
ATLANTA 3, Five Ivy Building, N. E., Lamar 4719, Edward M. Buck Company, Edward M. Buck
CLEVELAND 6, 10006 Carnegie Avenue, Sweetbriar 1-8138, Harris N. Pickett, Vice Pres., H. F. Smurthwaite
DALLAS 1,205 Irwin-Keasler Bldg., Riverside 4042 Edward M. Buck Company
DETROIT 35, 18482 Coyle Ave., Vermont 6-3244, Frank E. Landry
LOS ANGELES 5, Granada Building, 672 So. Lafayette Park Place, Dunkirk 8-2286, Bob Wettstein
NEW YORK 17, 369 Lexington Avenue, Murray Hill 6-7738, Kenneth S. Kaull, Vice Pres.; Charles J. Stillman, Jr., John C. Jones, Robert F. Lewis, Norman A. Schuele, Jr., Henry C. Ruppel
PORTLAND 5, 1220 S.W. Stark Street, Atwater 4107, (Bob Wettstein)
ROCHESTER 17, 169 Montclair Drive, Charlotte 3315-W, James W. Connell
ST. LOUIS 13, Margaret Ct., Florissant, Mo., University 6-4696, Donald F. Maguire
SAN FRANCISCO 8, Howard Bldg., 209 Post Street, YUkon 6-2522, (Bob Wettstein) Jerry Nowell

ARE YOU
BOTHERED BY
ENTRAINMENT?

Look into
METEX MIST
ELIMINATORS

...and see how they will help
boost production and cut costs



Removal of liquids entrained in gases is simple . . . economical . . . effective—when you use Metex Mist Eliminators! As the mixture passes through the Mist Eliminator, the entrained liquid is wiped out and retained by the extensive KNITTED wire area—until it coalesces into drops that are large

enough to fall back through the rising flow. The gas passes on—freed from entrainment.

Efficiencies 95% or better • Little if any pressure drop • Can be installed in existing equipment • Made of practically any metal • No moving parts

Worth looking into, isn't it? Ask for your free copy of "Metex Mist Eliminators", an 8-page brochure that's packed with facts. Or write us about your specific entrainment problem.

METAL TEXTILE CORPORATION
KNITTERS OF WIRE MESH FOR MORE THAN A QUARTER CENTURY

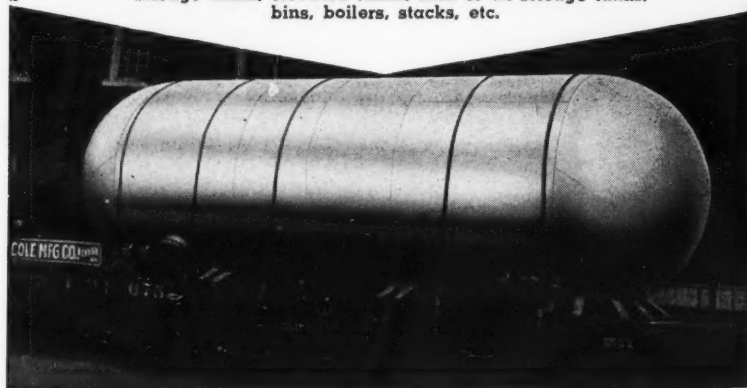


659 East First Avenue Roselle, N. J.

When inquiring check CP 3453 on handy form, pgs. 2-3

COLE ALUMINUM TANKS

We have available stock sizes from 9,500 to 22,800 gallons for pressure storage, and tanks of 99.6% pure aluminum for hydrogen peroxide from 5,000 to 11,150 gallons. "Cole" can furnish tanks made of steel, aluminum and stainless steel — built in accordance with ASME Code — to meet all insurance requirements. We invite your inquiries for high pressure storage tanks, elevated tanks, acid or oil storage tanks, bins, boilers, stacks, etc.



R. D. COLE MFG. CO.
NEWNAN, GA. Established 1854



TANKS TOWERS CYLINDERS VESSELS

When inquiring check CP 3454 on handy form, pgs. 2-3

CHEMICAL PROCESSING

"That's Interesting"

Spot tests aid recovery of scrap metals

Three common reagents and a magnet are all the materials needed to make spot tests of nine wrought white metals and alloys. This simple substitute for laboratory analysis was set up by the Development and Research Division of The International Nickel Company, Inc. Procedure is arranged to segregate strategic metals for recovery and to stretch critical supplies.

Giant betatron inspects 24" steel castings

Three 24,000,000 volt betatron X-ray units are being used for inspection purposes to speed production of armor steel castings in military tank program. Instrument penetrates 7 to 9 inches in little more than a minute. According to report, sharp and revealing X-ray film records are obtained through metal sections up to 24 inches in thickness. (Information from Steel Founders' Society of America, 920 Midland Bldg., Cleveland 15, Ohio.)

Container for benzyl chloride

Elimination of an extra step in reprocessing benzyl chloride was the problem that faced Heyden Chemical Corp., Ford, N. J. Situation called for a container that would protect original purity of the chemical, yet be large enough to permit bulk shipments. Glascote Products, Inc., Cleveland, offered the answer with a solid nickel tank with two compartments, each having a capacity of 1200 gal. (INCO Magazine — International Nickel Co.)

Electric table lamp uses no cords

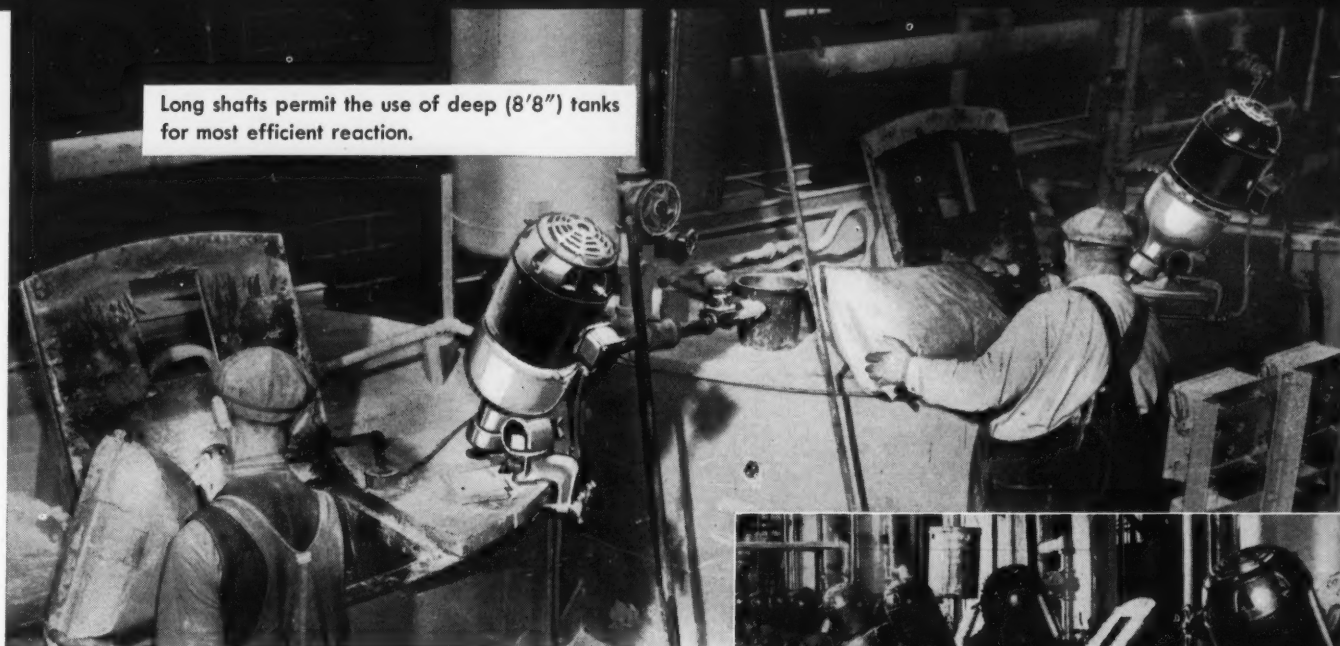
An electric table lamp that uses no cords has been invented by Nathaniel B. Wales, Jr. of New York City. A patent has been granted on his "magic lamp". The illumination comes from a fluorescent tube that rests on a ring. Ring sets in a base, and serves as an antenna that picks up radio energy for the lamp from a concealed transmitter. (Nat'l. Patent Council, 1434 W. 11th Ave., Gary, Ind.)

Use of crude rubber hinges on price

According to John L. Collyer, president of The B. F. Goodrich Company, the present use of crude rubber will not increase in relation to total new rubber consumption, unless there is a substantial reduction in its price. While crude and man-made rubber have specific and preferred applications, price will be a determining factor in nearly 50% of total new rubber consumption. Currently there is a 15 to 18 c variance in price per pound of man-made and crude rubber.

For more information on product at right, specify CP 3455
... see information request blank between pages 2-3.

Long shafts permit the use of deep (8'8") tanks for most efficient reaction.



These "Lightnin" Mixers Have Been Doing the Job Right for Over 10 Years!

"Our LIGHTNIN Mixers were installed in 1941. They've been doing an excellent job ever since," says Dr. J. M. Perri, plant superintendent, National Foam System, Inc., West Chester, Pa. National Foam uses a battery of eight 1-HP LIGHTNIN Mixers in the manufacture of its AER-O-FOAM fire-fighting compound.

Dr. Perri goes on to say, "LIGHTNIN Mixers have proved easy to install. They have been practically free of mechanical troubles, and their long shafts permit us to use deep reaction tanks for most efficient processing."

If your requirements call for fluid agitation, consult MIXCO. We have the research and engineering facilities to accurately predict processing results—and we'll absolutely guarantee those results with LIGHTNIN Mixers. Write us about your requirements.

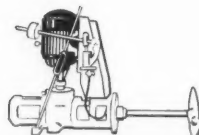
MIXCO

fluid agitation specialists

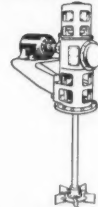
EVERY LIGHTNIN MIXER IS GUARANTEED TO DO THE JOB RIGHT



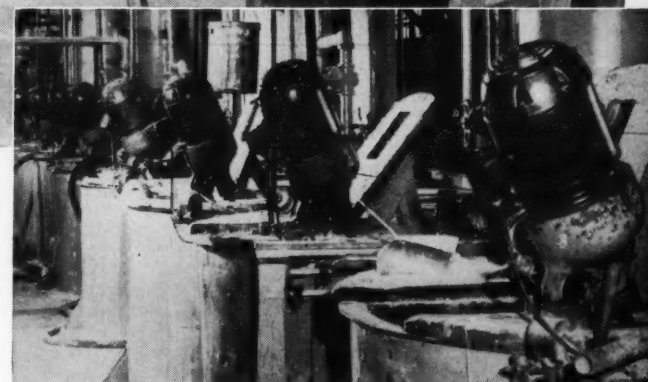
PORTABLE
1/2 to 3 HP



SIDE ENTERING
1 to 50 HP



TOP ENTERING
1 to 500 HP



LIGHTNIN case history

OPERATION:	Reaction of protein product (soya) with lime and water for hydration.
TANK:	3300 gal. stainless steel tank, 96" diameter x 104" straight side height, open top and dish bottom.
HEATING:	Two steam coils to heat batch to 200°F.
REACTION TIME:	One hour (approx.)
MIXING:	One 1-HP LIGHTNIN Portable Mixer.
MIXER PERFORMANCE:	HIGHLY SATISFACTORY. User has obtained excellent results from these mixers for more than 10 years.

MIXING EQUIPMENT Co., Inc.

185 Mt. Read Blvd., Rochester 11, N. Y.

In Canada: William & J. G. Greey, Ltd., Toronto

Please send me the bulletins checked:

- ☐ B-102 Top Entering Mixers (turbine and paddle types) ☐ B-100 Condensed Catalog (complete line)
☐ B-78 Top Entering Mixers (propeller type) ☐ B-75 Portable Mixers (electric and air driven)
☐ B-76 Side Entering Mixers ☐ DH-50 Laboratory Mixers

Name _____

Title _____

Company _____

Address _____

City _____ Zone _____ State _____

CHEMICAL PROCESSING

This is a

PUTMAN-STYLE[®] Magazine

... terse, vital editorial; "hand-picked" circulation; square, high-visibility format; quality readership; hence more **READER ACTION**

Other magazines use the PUTMAN format...
... but unless a publication has **ALL** the features above, it isn't a

PUTMAN-STYLE Magazine

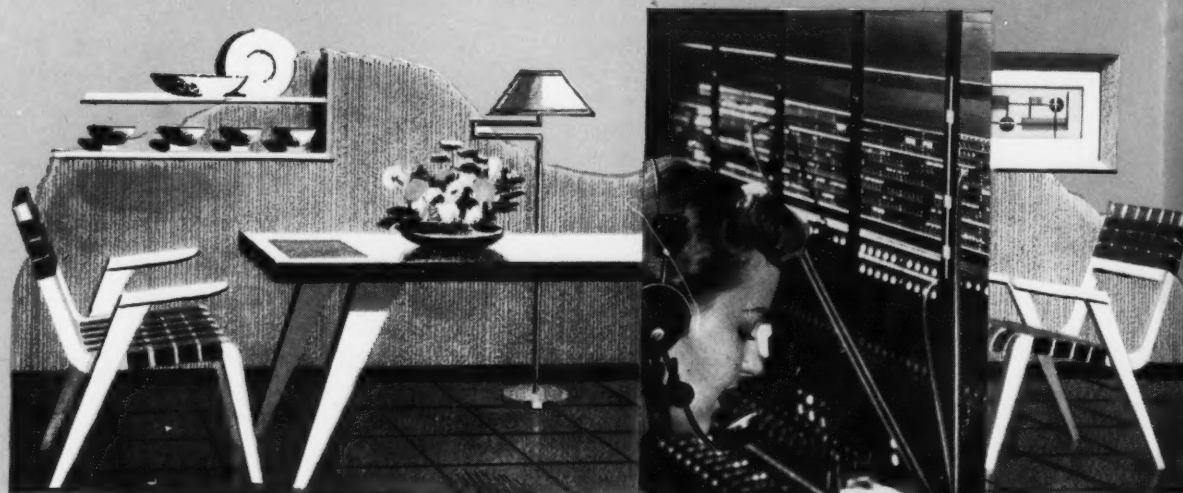
[®]Created by
Putman Publishing Co.

RECEIVED PCC CORP. K.C. MO

1952 JUN 27 AM 11:29

For more information on product at right, specify CP 3456
... see information request blank between pages 2 and 3.

Laminated Plastics Industry's Jack-of-All-Trades...



...with Creative Chemistry Your Partner in Progress!

Beauty, ruggedness and astounding ease of fabrication—all of these characteristics are available to manufacturers today in one material, *laminated plastics*. Reichhold, with

its world wide facilities for chemical research, has developed plastic bonding and laminating resins for many specific uses ranging from fishing rods to electronic equipment. In laminated plastics as in paint, paper, plywood and the many other fields it serves, RCI has established an impressive list of contributions ... new ideas, new opportunities for the manufacturer—through creative chemistry.

REICHOLD CHEMICALS, INC.

630 Fifth Avenue, New York 20, N. Y.

